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*Edgar Cysiat*

# PHYSICAL EXERCISES FOR ASTHMA

Approved by  
The Honorary Medical Advisory Committee  
of the  
ASTHMA RESEARCH COUNCIL

Published in aid of the funds of the  
Asthma Research Council

PRICE 2/- POST FREE

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ASTHMA RESEARCH COUNCIL



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EXERCISES  
for  
ASTHMA

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**T**HE ASTHMA RESEARCH COUNCIL was formed in October 1927 to promote research into asthma and its allied disorders.

The Council, which is under the patronage of H.R.H. The Duke of Gloucester, is responsible for raising the necessary funds for research and is assisted by an Honorary Medical Advisory Committee.

Asthma clinics have been established under the auspices of the Asthma Research Council at Guy's Hospital and the Hospital for Sick Children, Great Ormond Street, London, and grants have been made in aid of asthma research at other centres. Annual Reports and Balance Sheets can be obtained free of charge from the Secretary, Asthma Research Council, care of King's College, Strand, London, W.C.2.

A sum of approximately £2,000 a year is required to maintain the research, and it is earnestly hoped that all sympathizers will kindly contribute.

Donations should be sent to Sir Albert Stern, K.B.E., C.M.G., Honorary Treasurer, at the above address.







# PHYSICAL EXERCISES

## FOR ASTHMA

In an asthmatic attack the diameter of the small bronchi (air-tubes) is diminished as a result of spasm of the muscular coat, active congestion of the mucous membrane and excessive secretion of tough mucus. In inspiration (breathing in) the small bronchi are pulled open and the obstruction is thereby reduced. On the other hand, forced expiration (breathing out) tends to compress the bronchi and increase the obstruction. Consequently inspiration is much easier than expiration ; the difficult breathing of asthma differs in fact from all other forms of difficult breathing, in being mainly expiratory in character.

As inspiration remains comparatively easy during an attack, the lungs become more and more distended with air which the forced expiration is incapable of expelling. Consequently at the height of an attack the lungs are distended to their maximum capacity and each expiratory effort, however violent, only results in the expulsion of a very small quantity of air.

At the end of an attack the surplus air is expelled from the over-expanded lungs, which return to their normal size. If, however, the attacks are of long duration and frequent, the lungs remain over-distended, especially if, as is usual in chronic cases, the patient remains slightly out of breath during all or most of the day as well as during his nocturnal or other attacks.

The shape of the chest adapts itself to the condition of the lungs ; when the latter are over-distended, the chest assumes the so-called "barrel-shape", with the shoulders shrugged, the spine curved and the angle where the ribs join the breast bone unduly wide. If this position is maintained for long periods, the muscles of the chest gradually assume a shorter length, so that even if the patient subsequently becomes completely free from asthma, the chest wall does not return to its old normal position of rest ; this can still be assumed by means of a voluntary effort if the condition has not lasted for too long a period.

When as a result of chronic asthma the chest has assumed a greater size than normal, the lungs must also remain more distended than they should be normally.

The distended lungs are generally called emphysematous ; but true emphysema depends upon degeneration of the elastic tissue of the lungs,



which can no longer collapse (organic emphysema). These changes do not occur in uncomplicated asthma ; the lungs are large because they are distended and not because they are emphysematous (temporary or functional emphysema).

In true emphysema the enlargement of the lungs is primary and organic in origin and that of the chest is secondary. The enlargement of the lungs during an asthmatic period is primary but functional in origin, and the enlargement of the chest is secondary. But when the attack has disappeared and the patient becomes free from asthma, perhaps for months, perhaps for the rest of his life, the enlargement of the lungs is secondary to the permanent contraction and shortening of the chest muscles, which have fixed the chest in an expanded position.

The first object in treating a chronic asthmatic patient by exercises is to restore the lungs and chest cavity to their normal size ; in an early case, in which the muscles of the chest have not yet assumed a shorter length which keeps the lungs over-distended, the object of treatment is to prevent this from occurring. Ordinary breathing exercises, the object of which is to increase the expansion of the chest, are therefore of no use, as the asthmatic is already capable of expanding his chest to its greatest possible distension.

If an asthmatic is told to breathe deeply, his respiration is seen to be almost entirely carried out with the upper part of the chest ; in chronic cases, the lower part is generally already fully expanded and remains almost immobile, and the diaphragm is used only to a very slight extent. The exercises are designed to teach the patient, first, to use the lower part of his chest as well as the upper part, and, secondly, to employ diaphragmatic breathing to a greater extent than he has been accustomed to.

The exercises can be performed reclining on a bed, sitting on a stool or standing, according to the state of the patient's health at the time ; in any case the body should be held loosely with the arms by the sides. The patient should face a mirror, if possible, so that he can watch the effect of the exercises on the shape of his chest.

The exercises should at first be carried out with the aid of a Remedial Gymnast (*Masseuse*) who is an expert in remedial exercises. The patient should, however, continue to practise some of them daily for the rest of his life, even if he remains completely free from asthma for periods of months or years. It is indeed during periods of complete freedom, when plenty of open-air exercise can also be taken, that the exercises are most likely to give rise to a permanent improvement in the shape of the chest.



The exercises should be performed as far as possible in front of the open window, at the following times :

- (1) in the morning, before breakfast, when the patient is feeling fresh, and is least likely to be asthmatic ;
- (2) at night, before getting into bed, to clear the lungs before sleep ;
- (3) at the first sign of an impending attack, in order to prevent the asthma coming on ; many patients are able to abort their attacks entirely by doing the simple exercises gently.

Should the patient be in a condition of slight, but continuous, shortness of breath, it is advisable to take a dose of whichever remedy he finds suits him best, before beginning the exercises, e.g. an ephedrine or caffeine citrate tablet, the use of an atomizer, or a small injection of adrenaline.

When properly performed, the exercises should cause “ wheezing ” and often coughing at the end of expiration. This may distress the patient and at the beginning of treatment, it is common complaint that the exercises make him feel worse. With perseverance, however, the mucus in the bronchial tubes becomes loosened and the patient is able to cough it up, with consequent improvement of the asthma attack. Learning to acquire natural diaphragmatic breathing is like learning to ride a bicycle—difficult and uncomfortable at first until the knack is acquired, when it becomes “ second nature ”.

Having learnt the proper way to breathe, the majority of patients can prevent an attack progressing by doing the exercises ; they feel they have a method of relief in their own hands and lose their fear of attacks, thus acquiring confidence—a most important matter for every asthmatic.

It is essential that the patient should be shown how to do the exercises correctly by a Remedial Gymnast (Masseuse) specially trained in them and every case requires individual attention until the exercises are mastered correctly ; practising the exercises incorrectly does positive harm.

The illustrations on the following pages are of asthmatic patients.



## ESSENTIAL POINTS IN THE PERFORMANCE OF THE EXERCISES

1. Before commencing the exercises, the patient should blow the nose on a handkerchief to ensure a clear air-way.

2. As the object of the exercises is to empty the lungs, each exercise should begin with a *short* sniff-in through the nose, followed by a *long* breathe-out through the mouth, making a whistling noise with the lips. This noise fixes the patient's attention on blowing out as long as possible and enables the Gymnast to hear that the patient is doing this. Children can be taught to blow bits of cotton-wool, ping-pong balls, etc. when breathing out through the mouth in a way they cannot do when breathing out through the nose.

3. When breathing *in*, the patient must learn to keep the upper part of the chest still, so that the breathing is performed mainly by the abdominal muscles and diaphragm. When breathing *out*, the abdominal wall should contract, sinking in towards the spine; by allowing the abdominal wall to relax or sag out, the next breath is drawn into the lungs automatically. All exercises should finish by breathing out with the abdomen contracted.

4. The patient should breathe out sufficiently to hear the wheezing noises in the base of the lungs. This may cause coughing and increasing wheezing, but should be gently persevered with. The patient should rest for a minute or two between each exercise.

5. To begin with, the exercises should be done very gently with plenty of rest. When the patient is "tight on the chest" he should do them in the reclining position, lying back on the pillows with the knees comfortably drawn up; he may also lie on the side with the knees bent comfortably.

6. The preliminary exercises should be practised until they are done perfectly before going on to the advanced exercises. When an attack of asthma is starting, the first two exercises, 1A and 1B, are generally found most useful.

7. It is a good thing *to time with a watch* how long the patient can keep up the blowing out, but on no account must he take in a deep breath first. To begin with, a few seconds is all a patient can do but later on he may be able to sustain the "whistle" for 40 to 60 seconds.



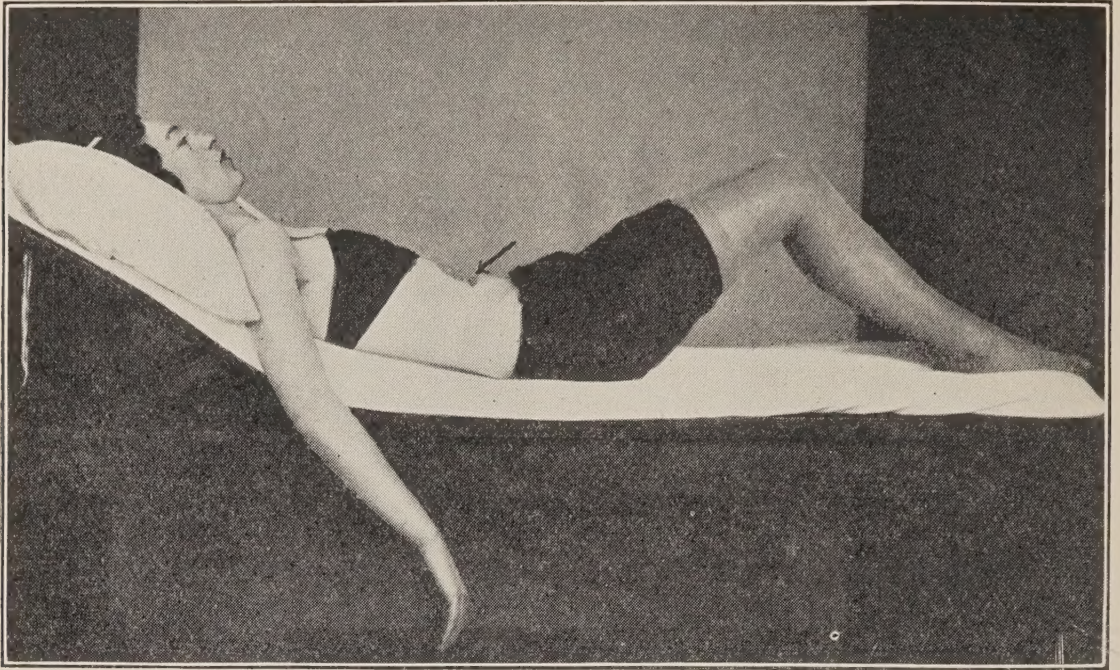
PART I

ELEMENTARY  
EXERCISES

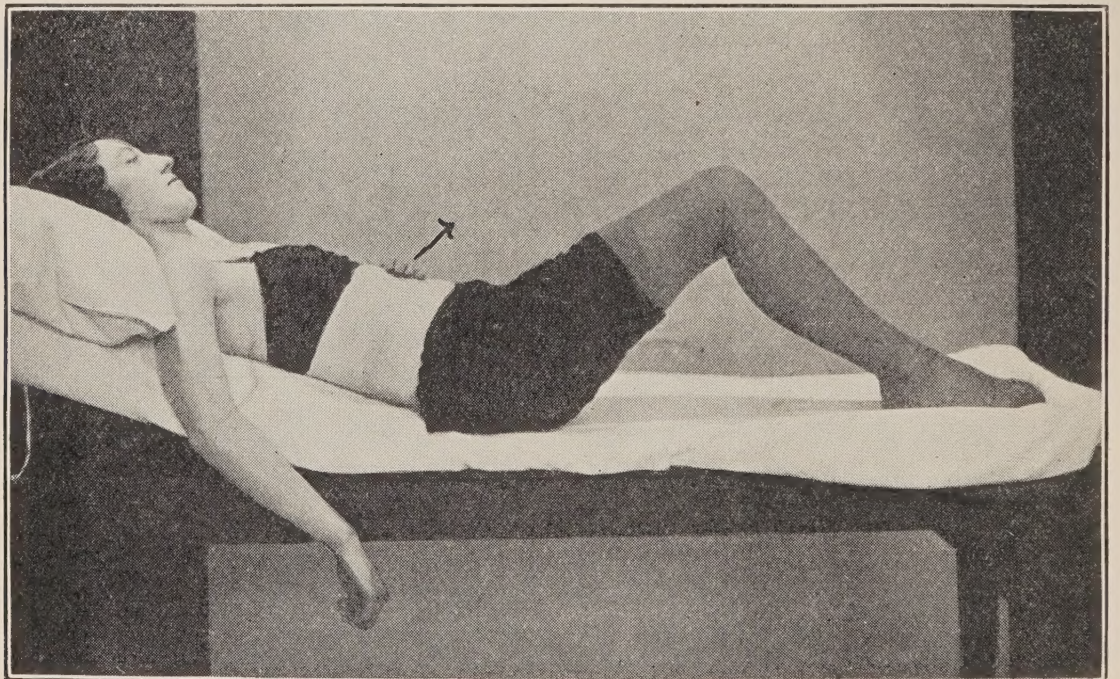


## IA. ABDOMINAL BREATHING

STARTING POSITION. Sitting with back supported, or lying with knees drawn up.



POSITION 1. Shown in lying position. With hand on upper abdomen feel fingers sinking in on breathing out, i.e. contract abdominal muscles.



POSITION 2. Relax abdominal muscles while taking in a short breath.

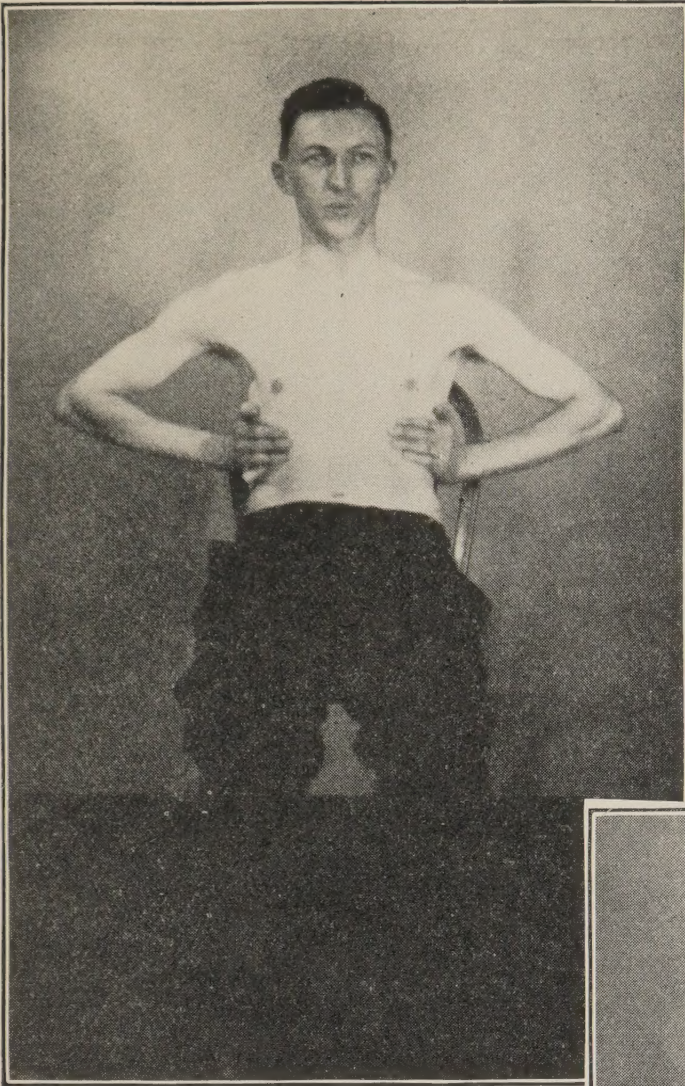
*Do not let upper part of chest move on breathing in. Before beginning the exercise relax complete—let head, arms and back sink down heavily upon the bed or couch.*



## I B. ABDOMINAL BREATHING

(continued)

Shown in sitting position

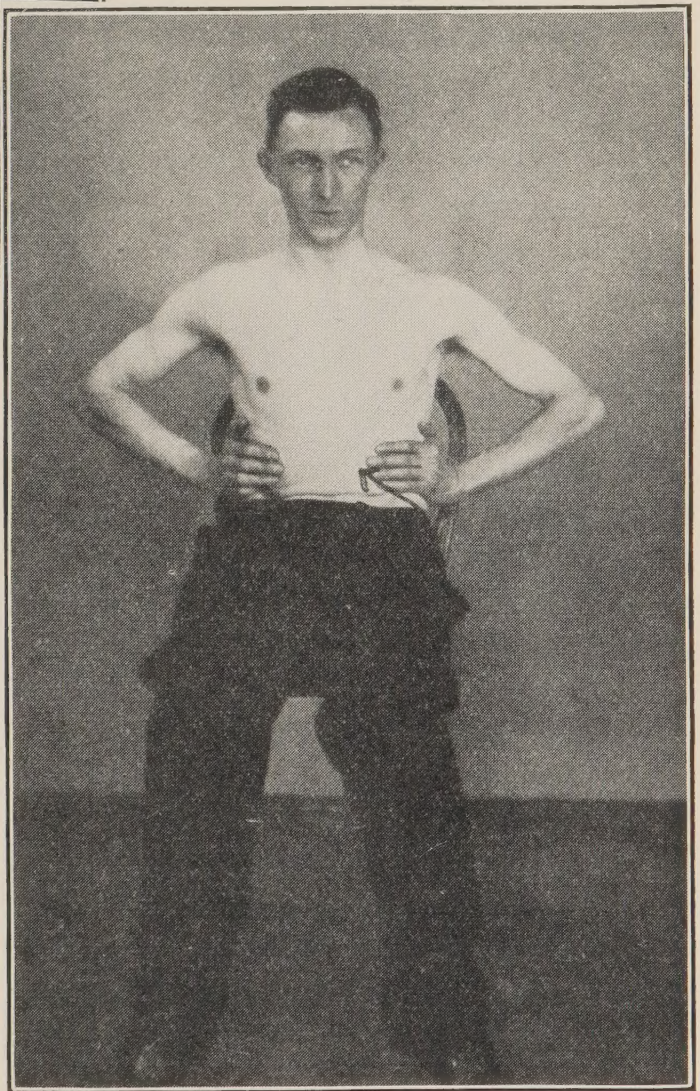


### POSITION 1.

With hands over lower ribs, wrists well back and fingers pointing forwards, begin to breathe out.

### POSITION 2.

Breathe out, contracting abdominal muscles.



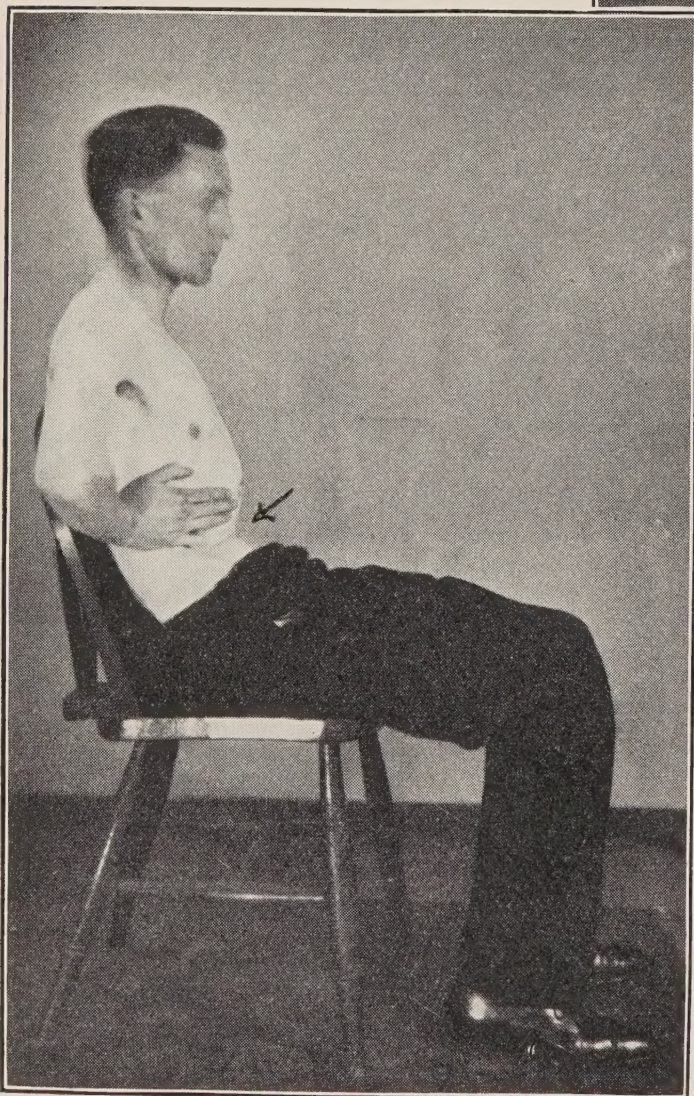
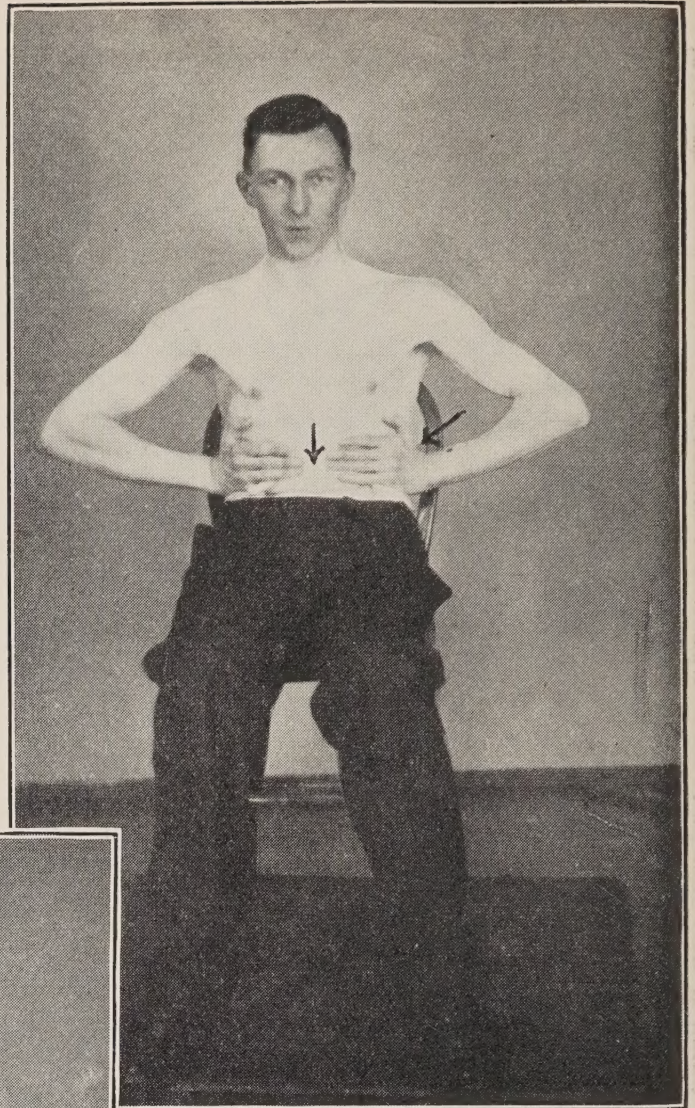


# I B. ABDOMINAL B R E A T H I N G

(continued)

## POSITION 3.

Squeeze the ribs at the end of breathing out (to force out last possible bit of air).



POSITION 3.  
(Side view)

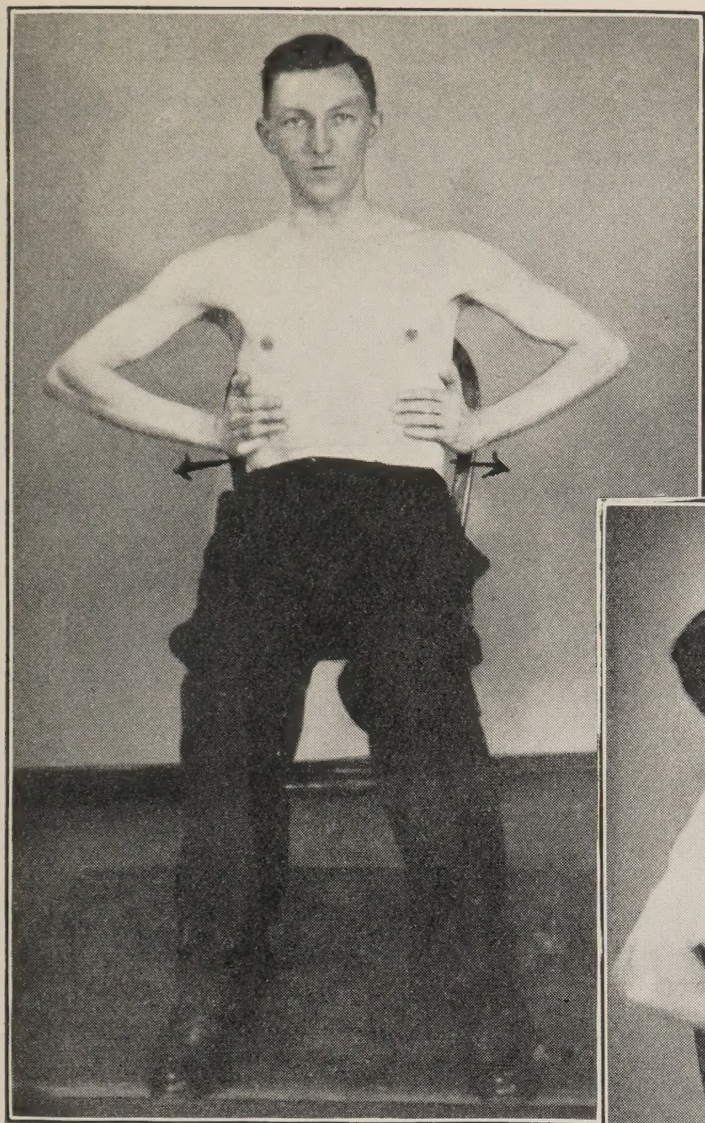


## 1B. ABDOMINAL BREATHING

(continued)

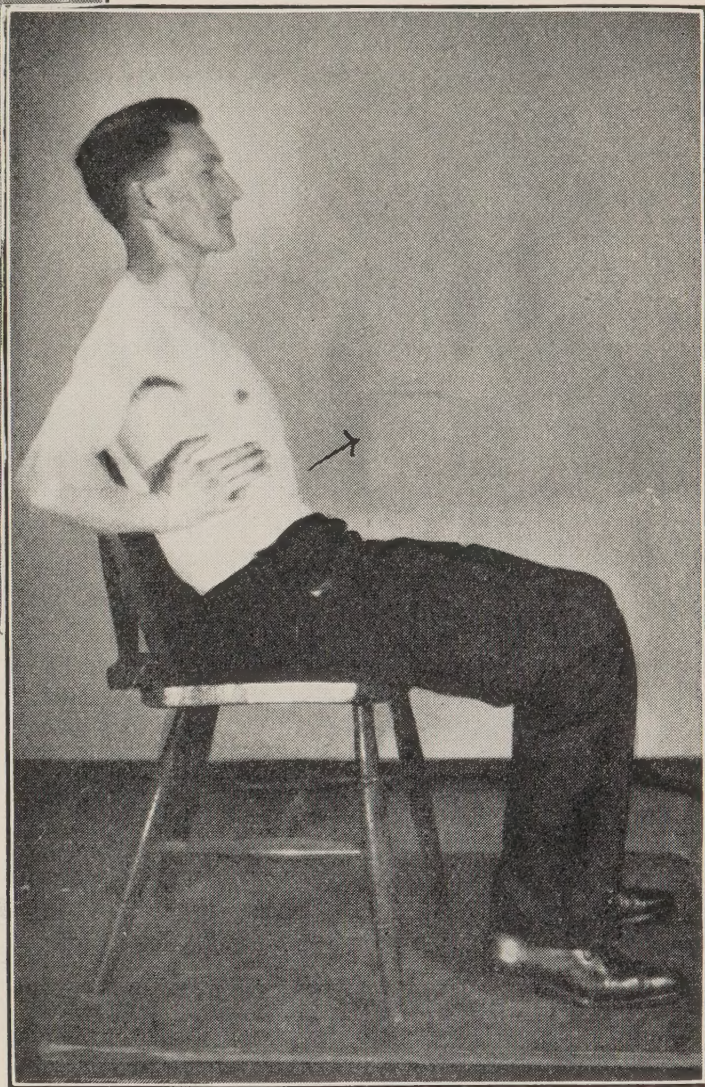
### POSITION 4.

Relax abdominal muscles and expand lower ribs while taking in a short breath.



### POSITION 4.

(Side view)



*Note. Shoulders must be lowered and arms quite relaxed until final squeeze.*

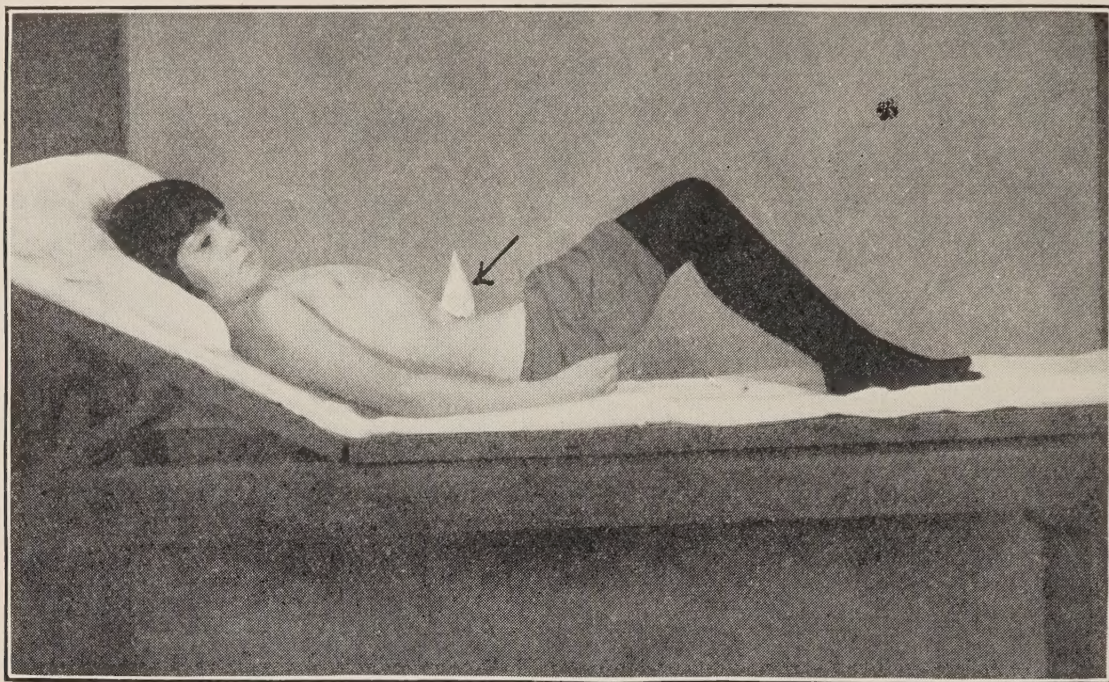
*This exercise should not be practised until the patient has become fairly proficient in 1A Exercise (either as shown in lying, or in the sitting position—as shown in 1B).*

*In 1B the aim is to expand and contract the lower ribs as well as the upper abdominal muscles, so as to use to their fullest power the bases of the lungs.*

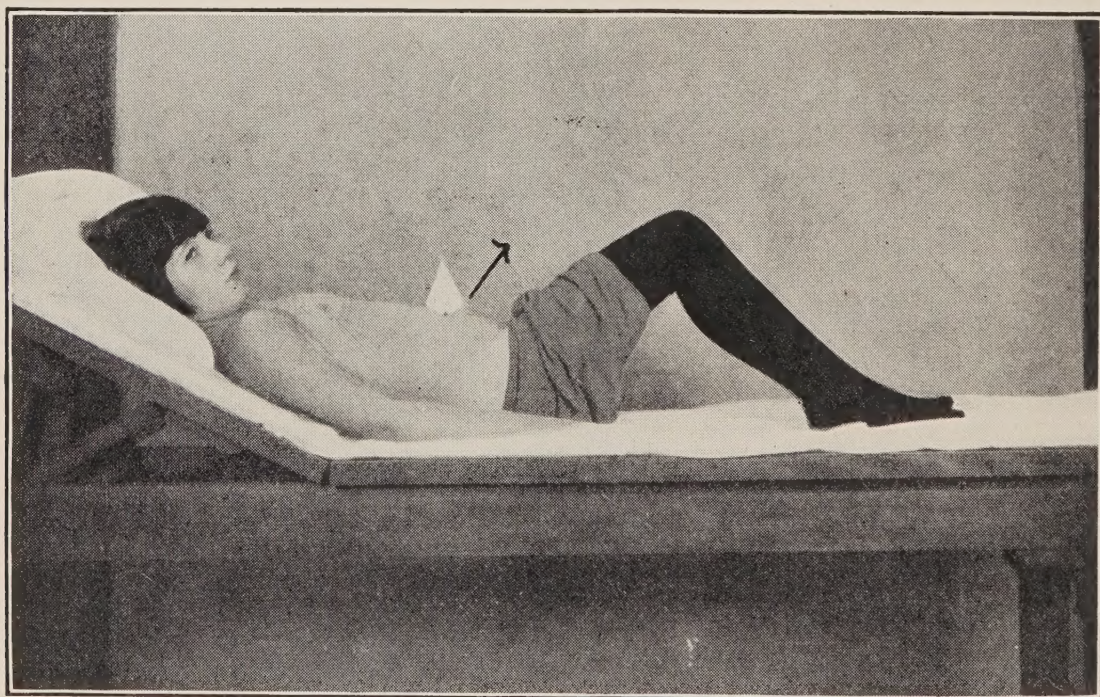


## 1c. ABDOMINAL BREATHING FOR SMALL CHILDREN

**STARTING POSITION.** Lying with knees drawn up, hands loosely at sides.



**POSITION 1.** Slowly breathe out while making small object (such as paper boat, celluloid fish, etc.) sink down "between waves".



**POSITION 2.** Relax abdominal muscles while taking in short breath so that toy comes up on "crest of wave".

*Note. Upper chest must not move in either position.*

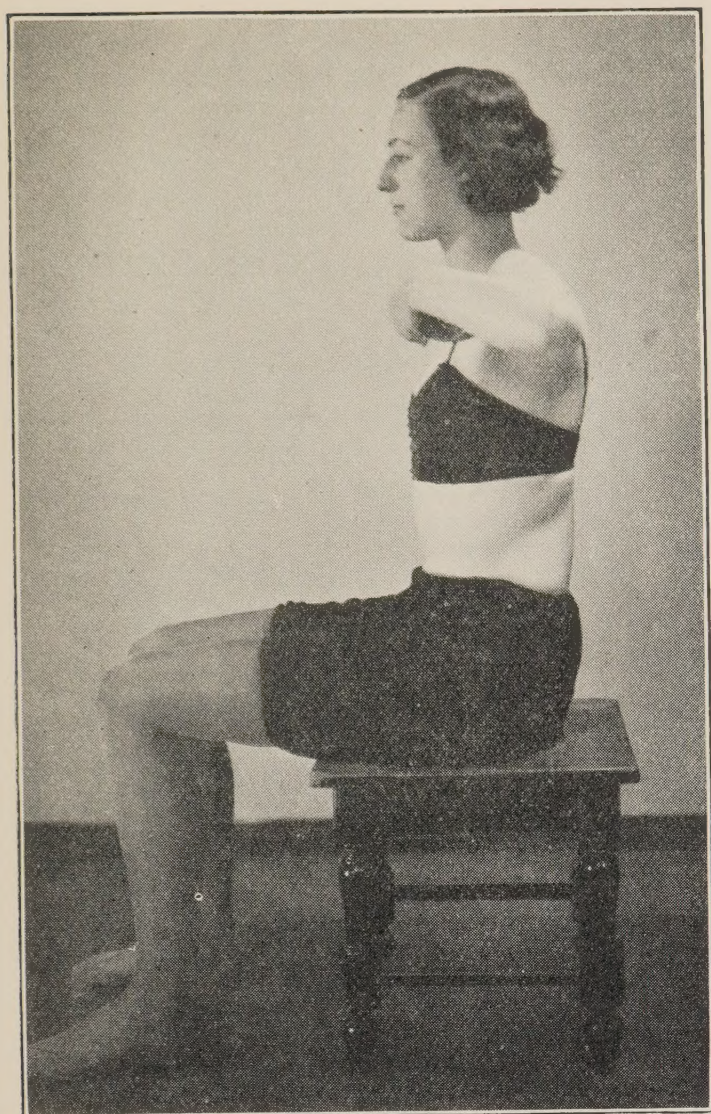


## 2. LOOSENING EXERCISE FOR SHOULDERS ELBOW CIRCLING

To be done between  
breathing exercises.

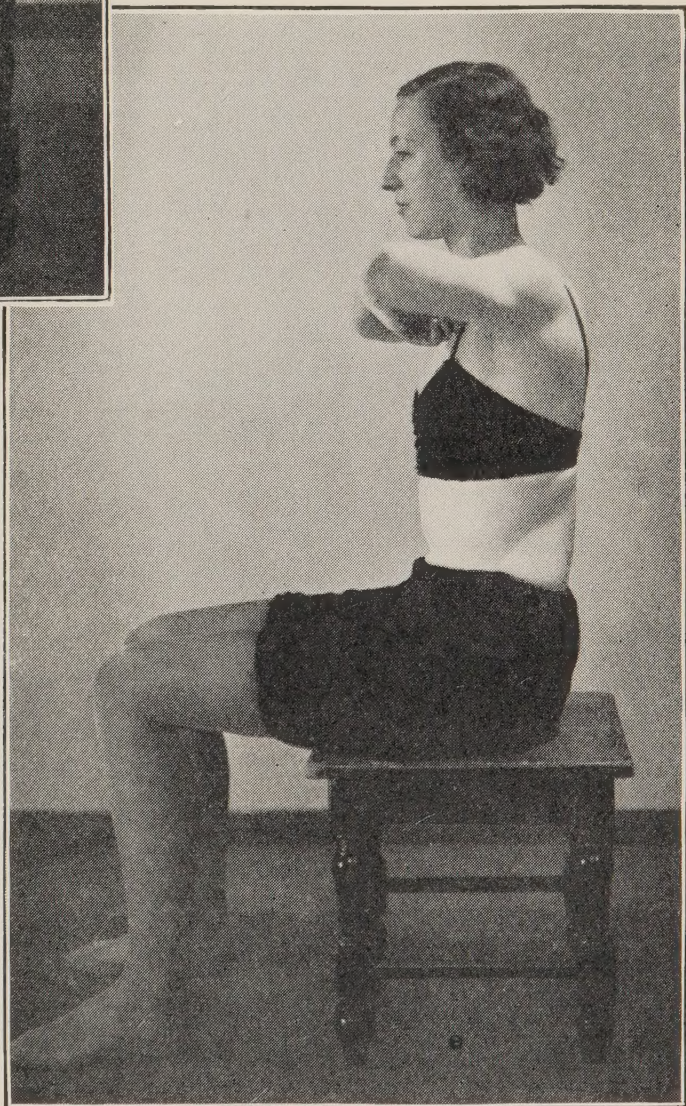
### STARTING POSITION.

Sitting with feet apart, hands  
to shoulders and elbows held  
out from the sides level with  
the shoulders.



### POSITION 2.

Carry the elbows slightly  
forwards.



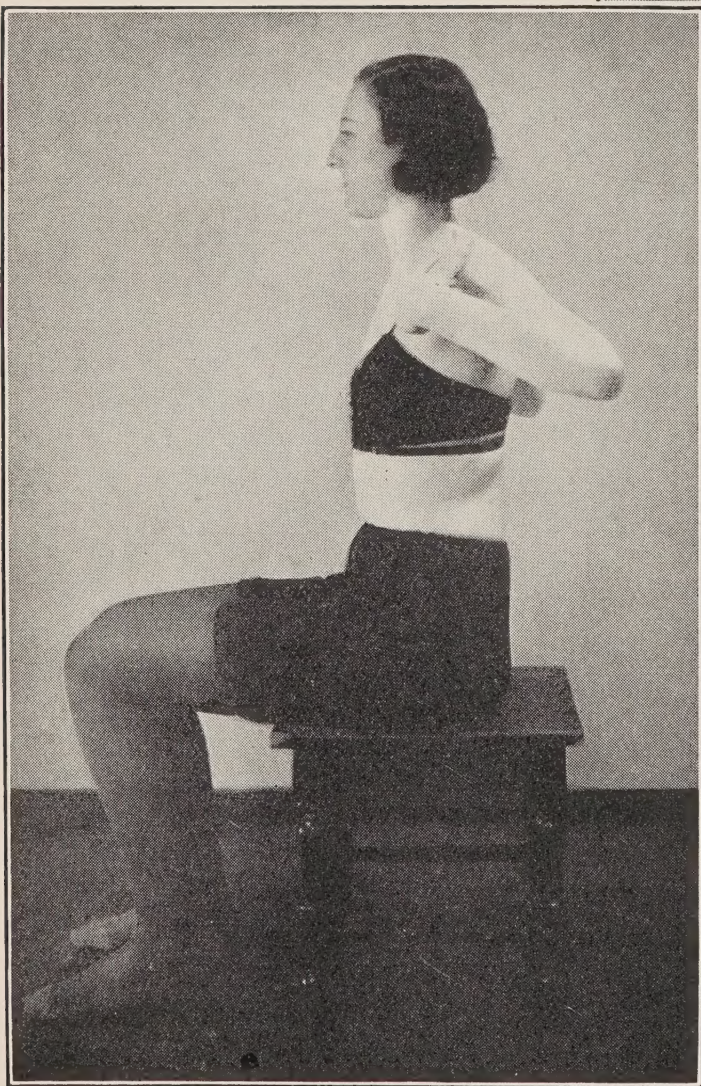
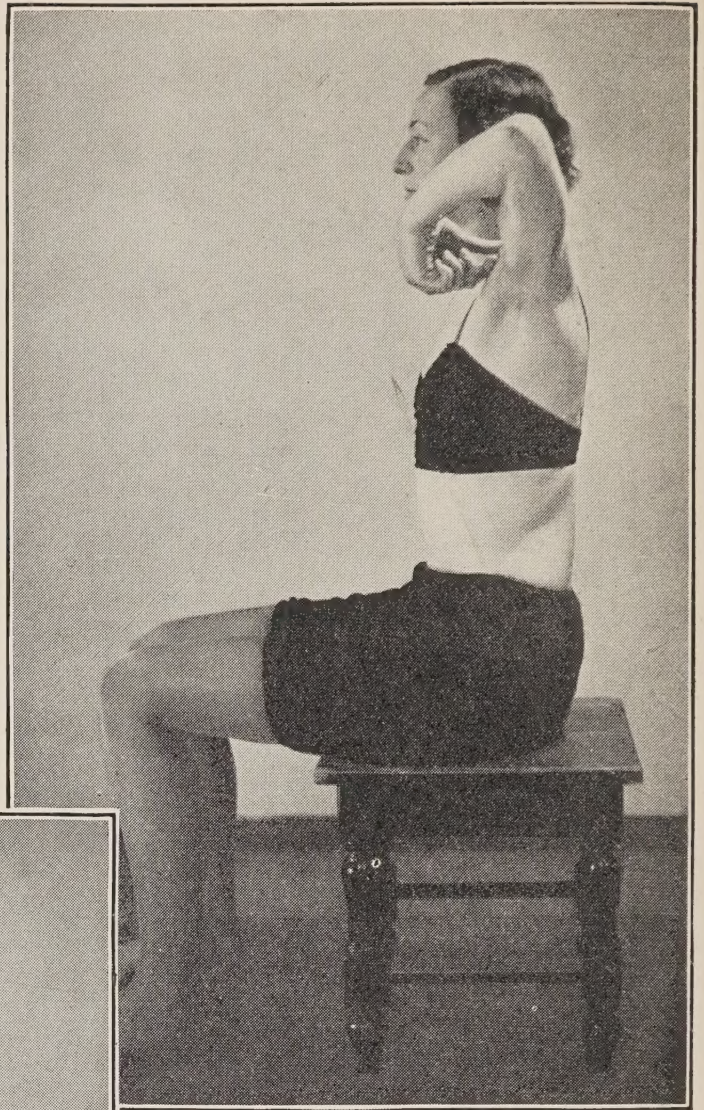


# LOOSENING EXERCISE FOR SHOULDERS

(continued)

## POSITION 3.

Carry the elbows upwards.



## POSITION 4.

Carry the elbows backwards and downwards.



## FOR ASTHMA SUFFERERS.

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THE Asthma Research Council was founded in October, 1927, to organize research into Asthma and the allied disorders, including hay-fever, eczema and migraine.

¶ The Council consists of a Committee, the majority of whom are, or have been, sufferers from asthma and are, therefore, personally interested in the subject. This Committee is advised on all medical matters by an Honorary Medical Advisory Committee consisting of doctors who have made a special study of asthma and who are attached to some of the great Hospitals and Universities in Great Britain.

¶ The work of the Asthma Research Council is strictly confined to research, and it is not possible for the Council to give any advice regarding treatment or the choice of a doctor to individual sufferers. Nearly every case of asthma differs in some respect from any other case. For this reason it is advisable to consult a doctor immediately the first symptoms of asthma or any of the allied disorders appear and be guided by his advice.

¶ The following notes about asthma are published for general information and are not intended to take the place of the advice which can be given only by a properly qualified doctor after examination of the patient.

¶ The altered constitutional state, which renders an individual liable to asthma, is often inherited, and may be aggravated by wrong modes of life, such as improper diet and deficient open-air exercise. It may also cause other conditions, such as hay-fever, nettlerash, eczema, and migraine.



¶ Actual attacks of asthma may be brought on as a result of the predisposed individual becoming "sensitized" to some chemical substance or substances: that is to say, such persons are affected by the emanations from the skin of certain animals, especially horses and cats, by feathers, by face-powder (orris-root), by the pollen of certain plants, by certain foods, by special varieties of dust, or by the poisons of certain bacteria, any of which may precipitate an attack. Sensitization is a peculiar condition in which an otherwise absolutely innocuous substance becomes an acute poison for the sensitized person. For example, a pollen of grass is quite non-poisonous for men and animals, except for the few who have the misfortune to be sensitized to pollen and are, therefore, hay-fever subjects.

¶ Comparative immunity can sometimes be obtained by avoiding, as far as possible, the cause or causes which are known to bring on an attack, but it is seldom possible to obtain complete immunity by such means. It is generally advisable to substitute kapok or porous rubber for the feathers in pillows and eiderdowns and the horsehair in mattresses.

¶ Every sufferer can assist in his or her own cure by paying strict attention to the ordinary rules of health and making a careful note of any special circumstances which appear to aggravate the complaint.

¶ At the first sign of asthma the patient should be carefully examined with a view to the removal of any obstruction of the air passages and the treatment of any catarrh which may be present.

¶ Careful dieting often forms an important part in the successful treatment of asthma. It is impossible to suggest any form of diet suitable for every individual case, but the last meal in the day should be very light and taken at least two hours before going to bed. In some cases, especially in children, it is found necessary to eliminate some special food, such as milk, eggs, or fish, from the diet. Many asthmatics, particularly children, have been greatly benefited by taking honey with their first and last meals.



¶ Regular exercise in the open air should be taken daily, irrespective of the weather, though most asthmatics, especially if they also suffer from chronic bronchitis, find it necessary to avoid cold winds. Walking and golf are, perhaps, the best forms of exercise for asthmatics. Breathing exercises, in which special attention is paid to the complete emptying of the lungs in expiration and to the correction of any error of posture, are also very valuable. Breathing should be carried out with the mouth shut; inspiration should be mainly "abdominal," *i.e.*, diaphragmatic, and done without hunching of the shoulders. A booklet describing exercises for asthmatics can be obtained from the Secretary of the Asthma Research Council, price 2/- post free.

¶ Residence in a high, dry locality is recommended. This, unfortunately, is not possible for all asthmatics, but every effort should be made to change the residence if other measures fail to give permanent relief. Nearly all persons resident at an altitude between 4,000 and 5,000 feet are immune from asthma so long as they remain at that altitude, and a visit to the Alps is almost always beneficial.

¶ It is through research, and research alone, that any increase can be made in our knowledge of these disorders which cause so much misery and unemployment. Valuable research work has been carried out by individual workers for many years past. The Asthma Research Council is now engaged in co-ordinating and increasing the work by means of grants to teams of research workers whose experience will be pooled. A comprehensive scheme of research involving an expenditure of £50,000 has been drawn up. A beginning has been made, but funds are urgently needed to complete the programme. Every sufferer from asthma, hay-fever, eczema and migraine is earnestly requested to assist the investigation by sending a donation.

¶ Donations should be sent without delay to Sir ALBERT STERN, K.B.E., C.M.G., Hon. Treasurer, Asthma Research Council, c/o King's College, Strand, London, W.C. 2. Cheques and Postal Orders should be made payable to the Asthma Research Council, and crossed "Westminster Bank, Tavistock Square Branch."



# **PHYSICAL EXERCISES FOR ASTHMA.**

**An Illustrated Pamphlet  
showing various types of simple  
breathing exercises.**

**Approved by the Honorary Medical Advisory  
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**PRICE 2/- post free**

**from the Secretary,**

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**c/o King's College,**

**Strand, London, W.C. 2.**

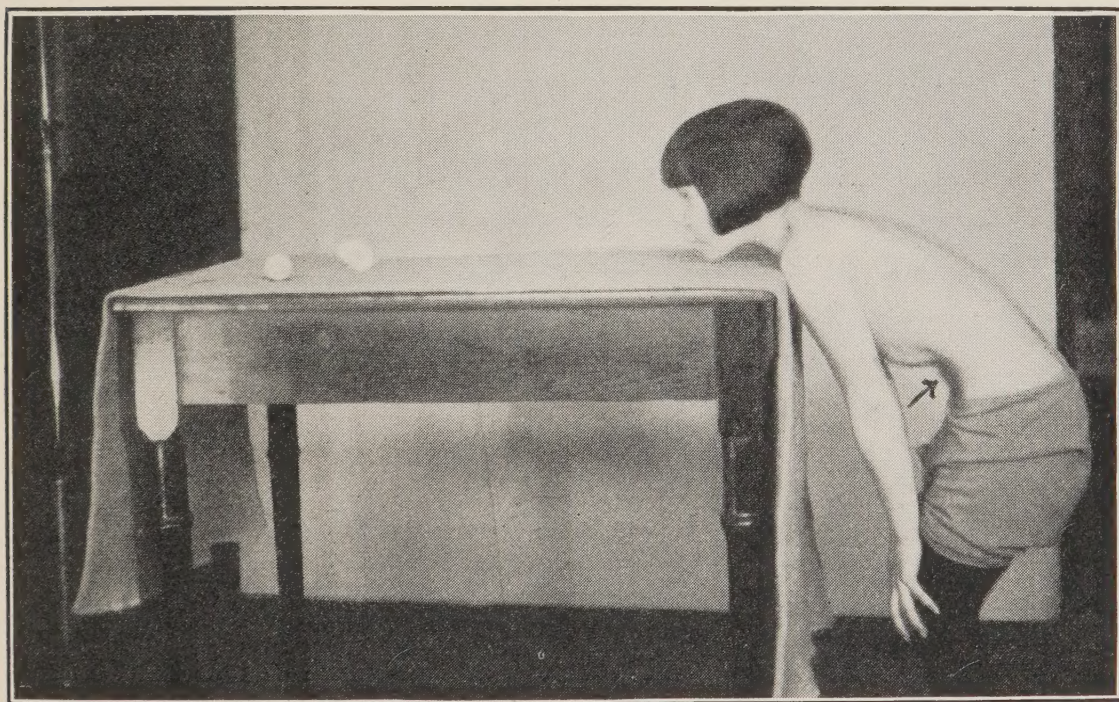


Repeat quickly six to eight times. Then rest, dropping arms to sides to relax shoulders. Repeat.

*Note. The back is held straight, the lower part being pressed back. If this is found to be very difficult practise at first with the whole back pressed against a wardrobe corner (doorway edge, etc.), either sitting on a stool or standing with the feet well forward (as in advanced exercise).*

*If there is a large space still between lower part of back and the doorway edge, put a pad (of rolled-up stocking or socks) in the space and try to keep the back pressing so that the pad will not fall out during the exercise.*

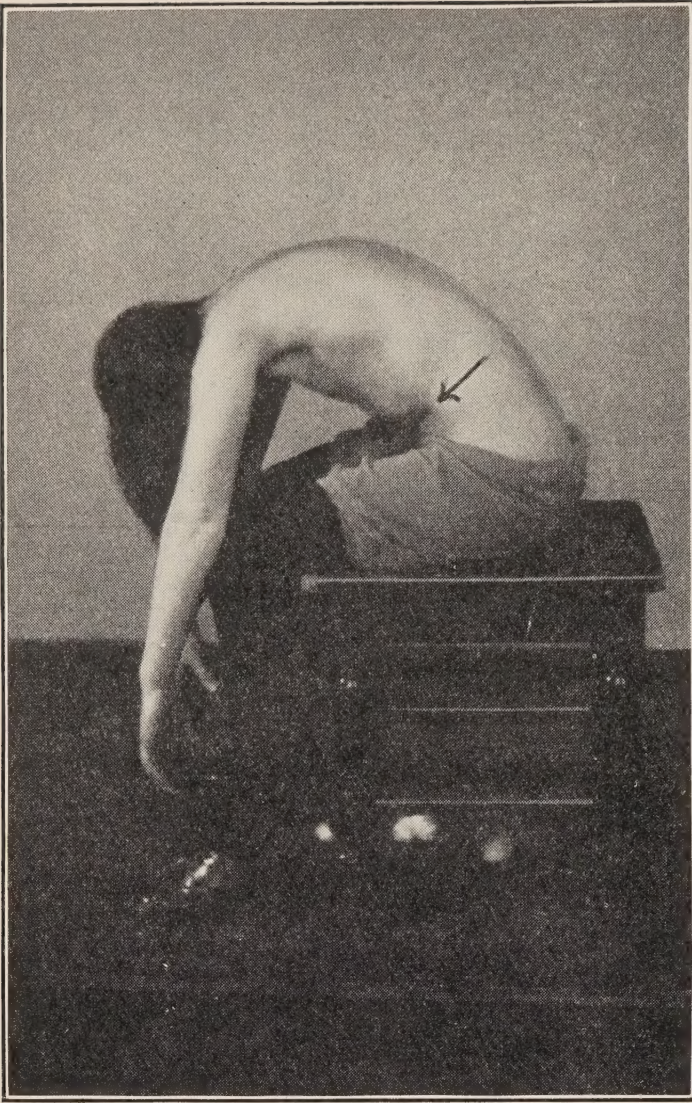
### 3. BLOWING EXERCISE FOR CHILDREN



**STANDING.** Blow bits of paper, small balls, etc., across table. At first through mouth, later through nose. There must be one long blow, not many short ones.



## 4. FORWARD BENDING



### STARTING POSITION.

Sitting with feet apart and arms hanging loosely at sides.

**POSITION 1.** Bend the body forwards until the head is between the knees (or above them) while breathing out and fully contracting abdominal muscles.

. . . . .

*These forward bending exercises should be repeated five times at first, then increased to about ten. While in the upright position the shoulders are held lowered, arms slightly drawn back, and back straight, as in Position 3. When beginning to breathe out, the head relaxes forwards first, then the shoulders and arms, so that the early part of the movement is as shown in Position 2 of the Relaxing Exercise No. 6.*

*In the photographs this exercise is shown for small children with something to blow (bits of cotton-wool, paper, etc.) on the floor to encourage breathing out.*

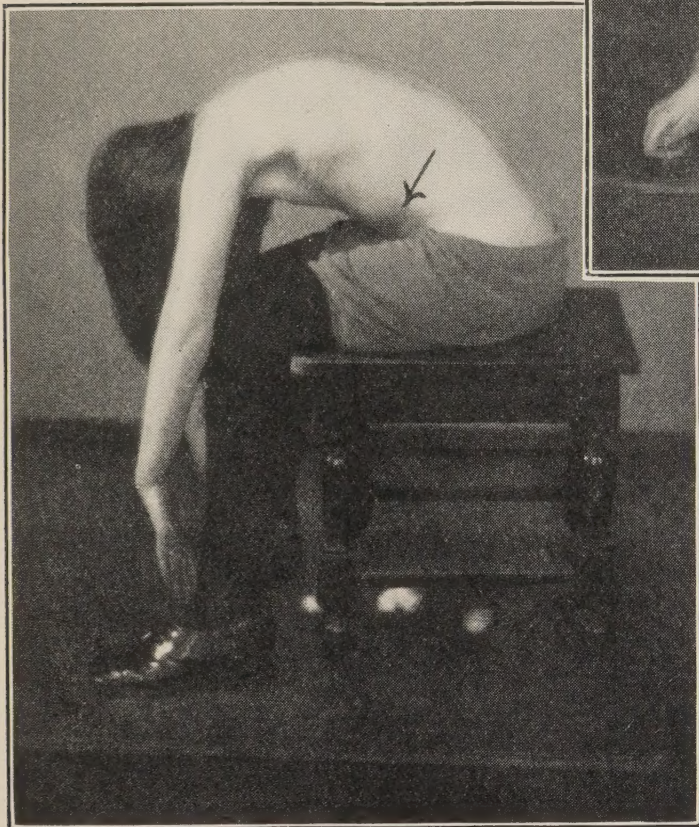
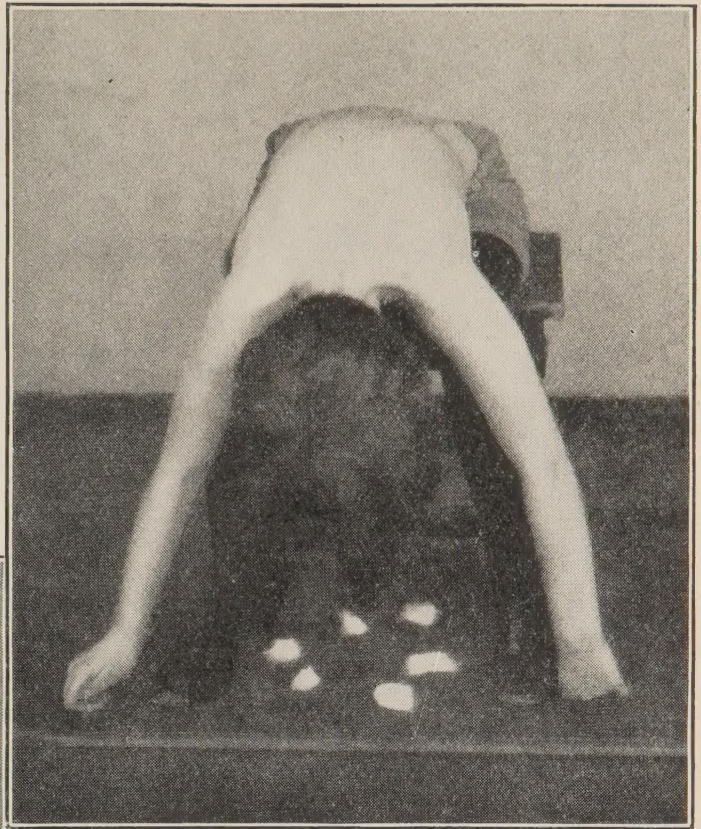


## 4. FORWARD BENDING

(continued)

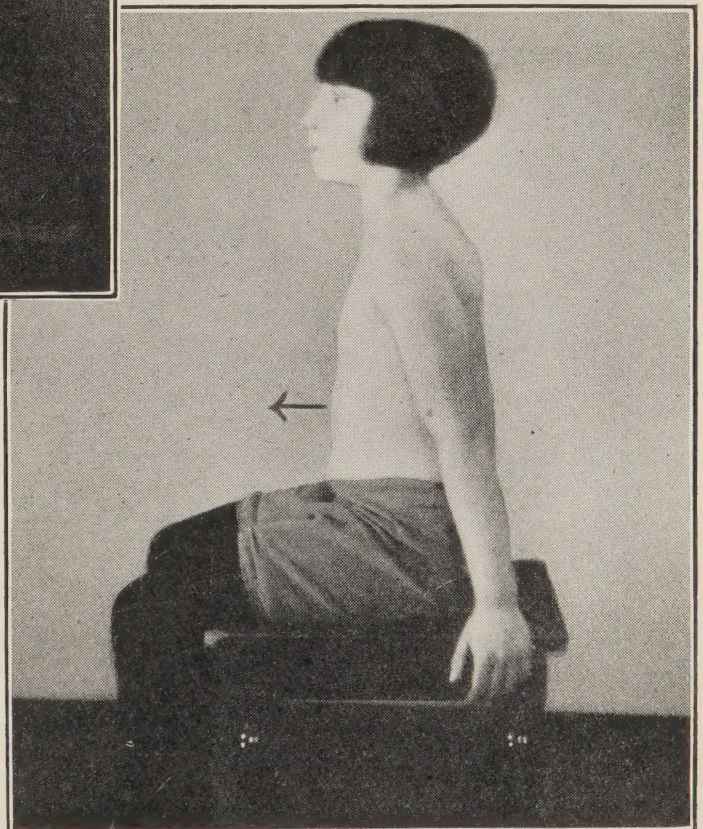
### POSITION 1A.→

The back should be rounded.



### ← POSITION 2.

Raise the body, gradually  
pushing out the back . . .



### POSITION 3.→

Until the body is erect, while  
breathing in.

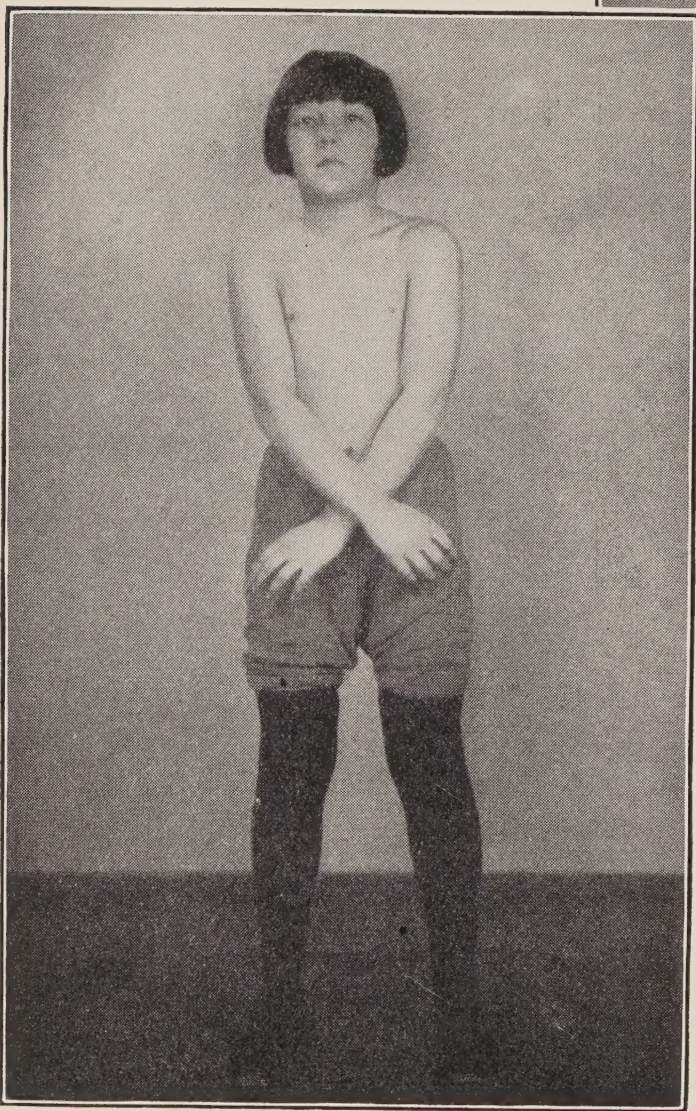
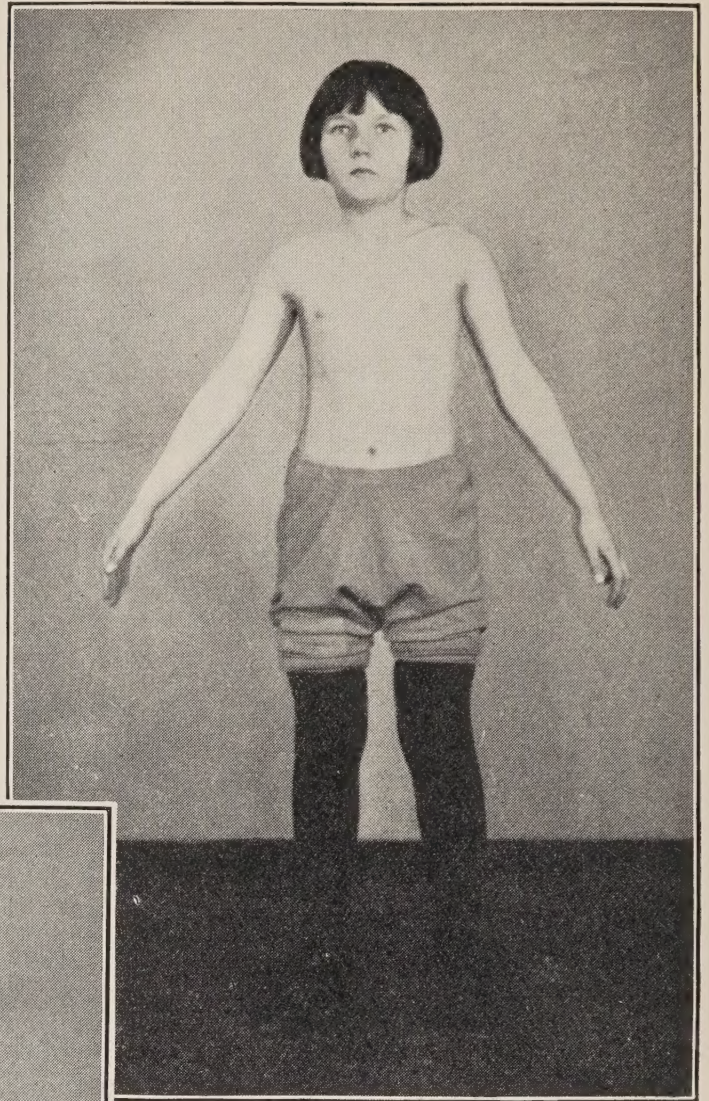


## 5. SHOULDER LOOSENING EXERCISE

### “Windmills” For Children

#### STARTING POSITION.

Standing with feet apart.  
Both arms are circled so that  
they cross each other coming



upwards in front of face.  
The circles thus intersect  
each other.

#### POSITION I.

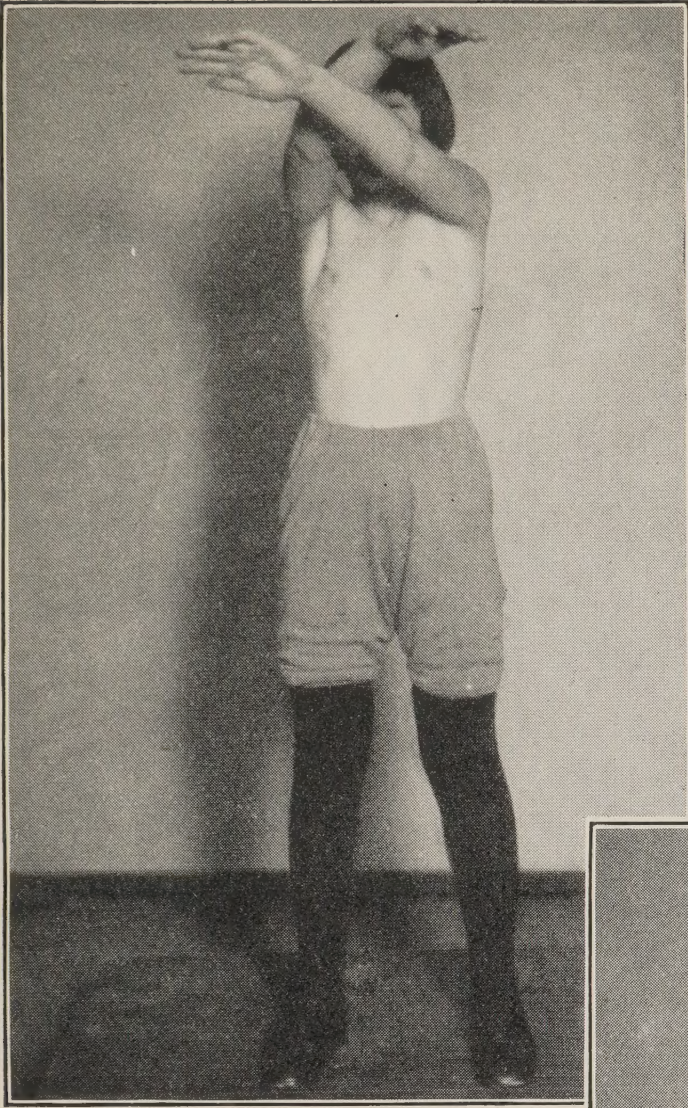


# “ Windmills ”

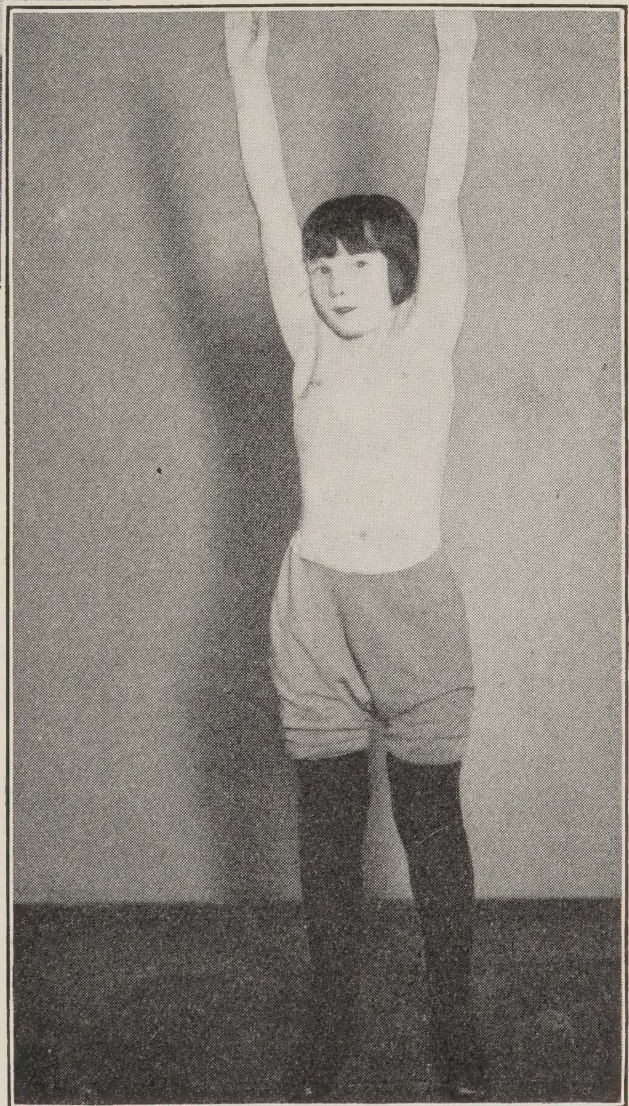
## For Children

(continued)

POSITION 2.



POSITION 3.





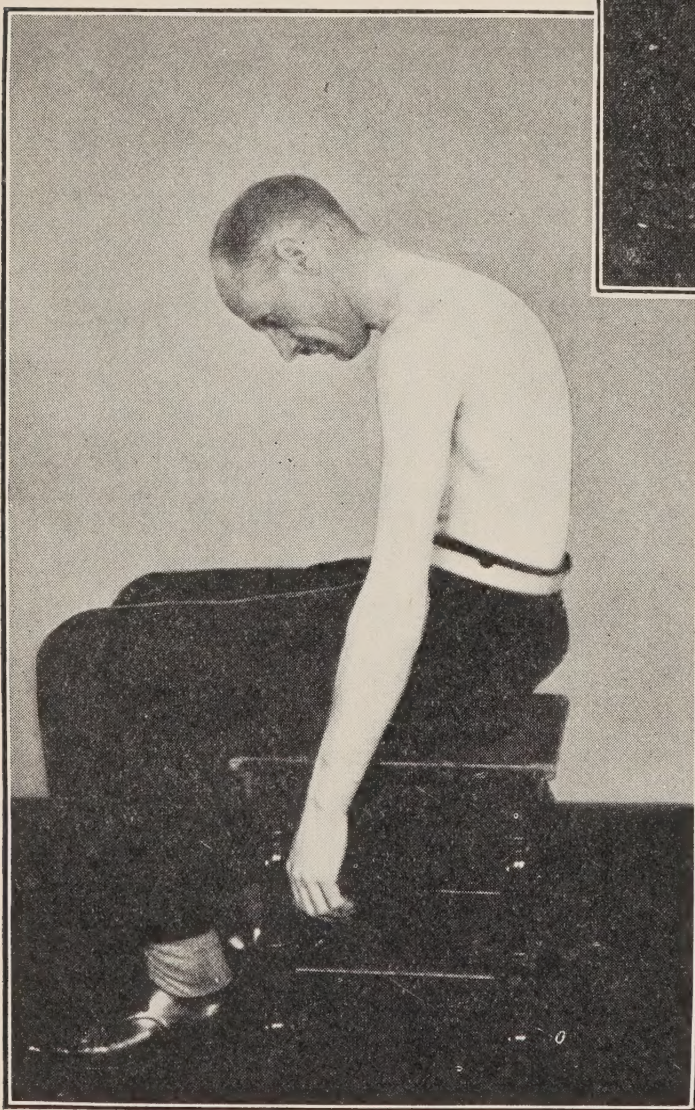
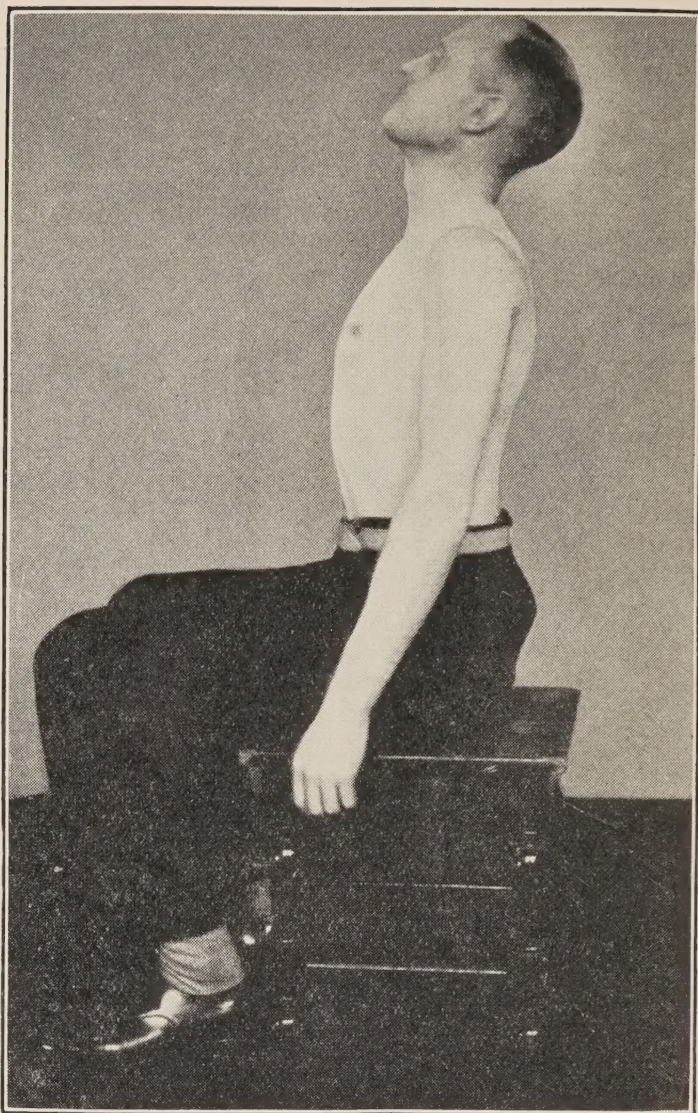
## 6. RELAXING EXERCISE

### STARTING POSITION.

Sitting feet apart.

#### POSITION 1.

At first, shrug shoulders slightly. Relax shoulders and let arms hang heavily. Later, shrug shoulders and tighten arm muscles while pressing head back.



#### POSITION 2.

Relax all the muscles that were tense (in Position 1) completely, allowing head and shoulders and back to sag.

*Note. The shrugging and tightening should be done quickly (count two). The relaxing should be maintained for at least twice as long (count four).*



PART II

ADVANCED  
EXERCISES



## 7. ABDOMINAL TRUNK EXERCISE WITH BREATHING (continued)

STARTING POSITION. Lying back, knees bent up, arms limp at sides, as in Exercise 1A, Position 1 (but without hand on abdomen).



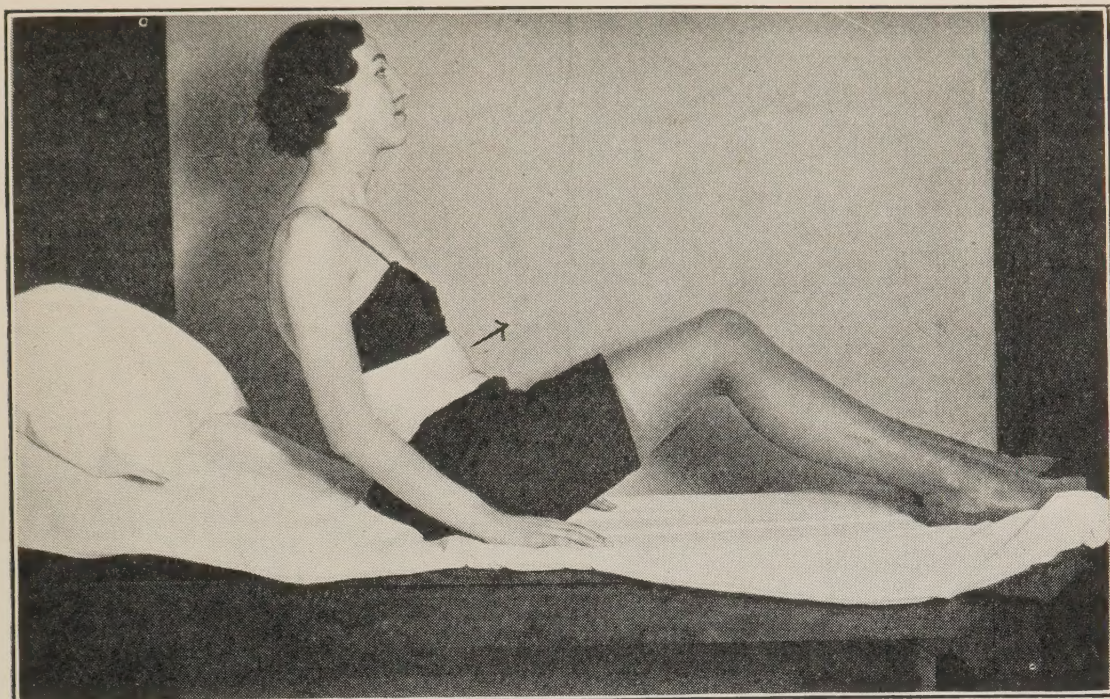
POSITION 1. Breathe out while rising.



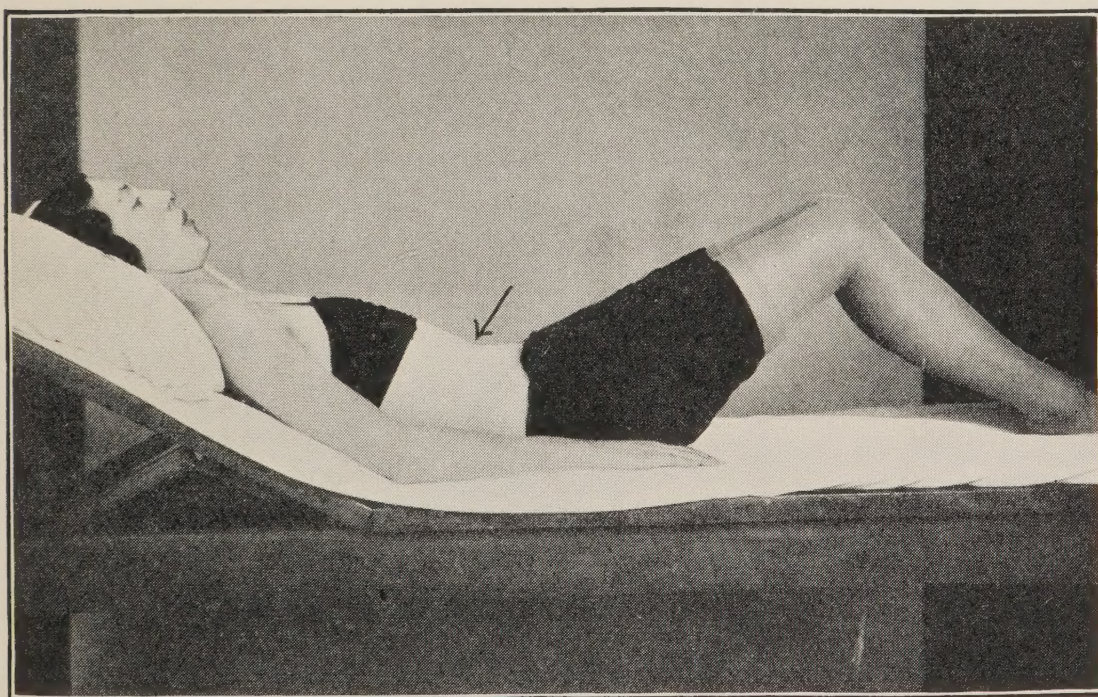
POSITION 2. And bending forwards to place the head between the knees.



# ABDOMINAL TRUNK EXERCISE WITH BREATHING (continued)



POSITION 3. Breathe in while sinking back.



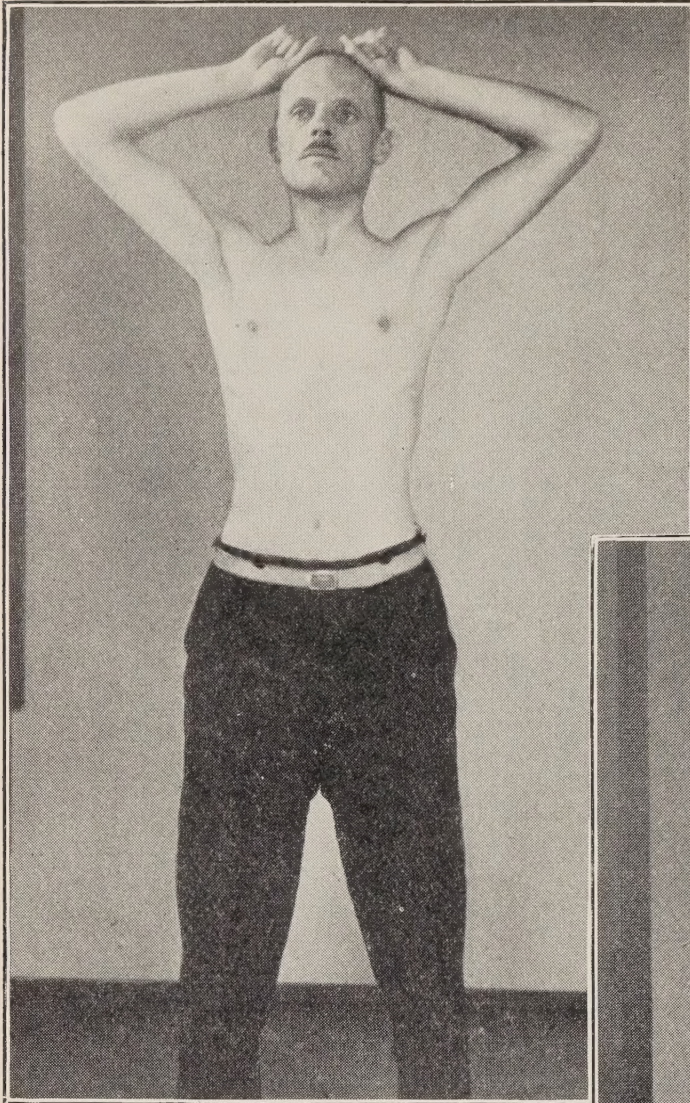
POSITION 4. Rest for a moment while breathing out quickly and contracting abdominal muscles.

Then breathe in before repeating the exercise.

*Note. While resting back the breathing is of normal rate, but only the upper part of the abdomen and lower ribs move. In bending forwards the back is rounded and head just above or between knees, so that the abdominal muscles can be fully contracted.*



## 8. LOOSENING EXERCISE. HEAD AND SHOULDER SIDE-BENDING

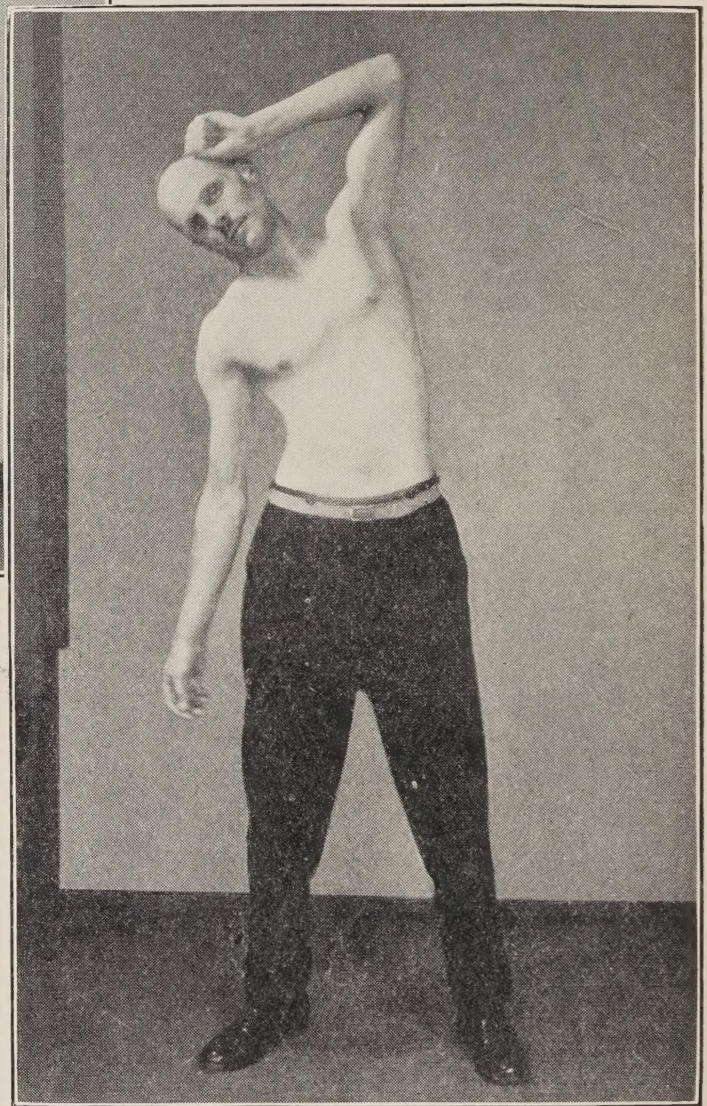


### POSITION 1.

Standing with feet apart, with clenched fists resting almost on top of the head at either side. Elbows well back.

### POSITION 2.

Bend head and shoulder over, carrying the arm down to the side. Straighten and carry the arm back to the starting position.



*Repeat with a quick swing down of the arm three times to one side, then three times to the other side with the other arm moving.*

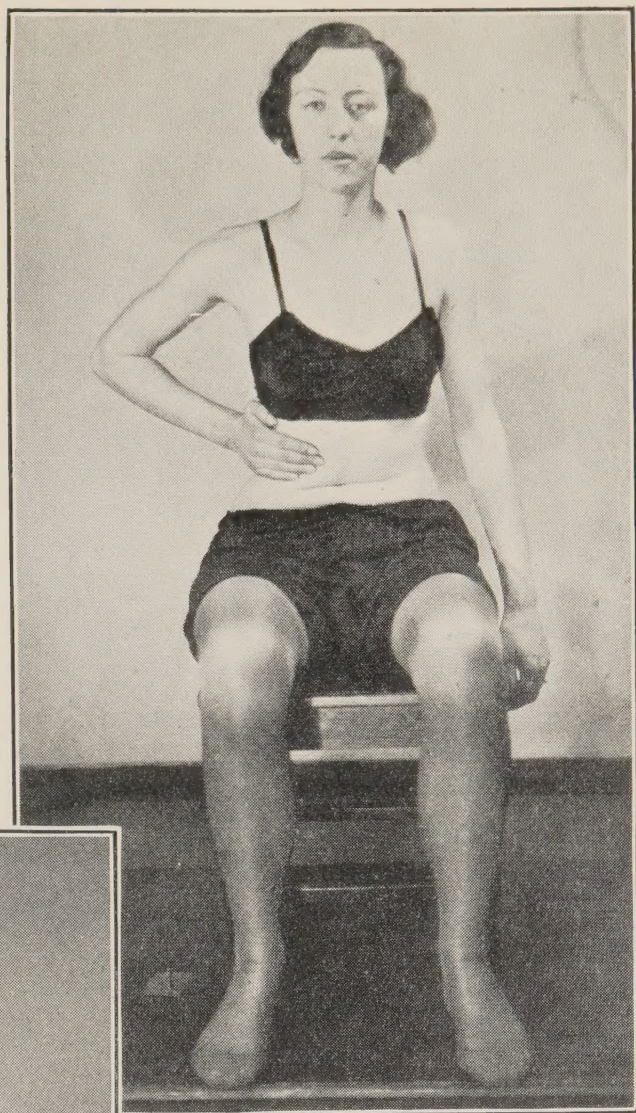
*When bending to the right use the left fist to push the head well over to the right. Note that it is only head and shoulders that move.*



## 9. ADVANCED TRUNK SIDE-BENDING WITH BREATHING

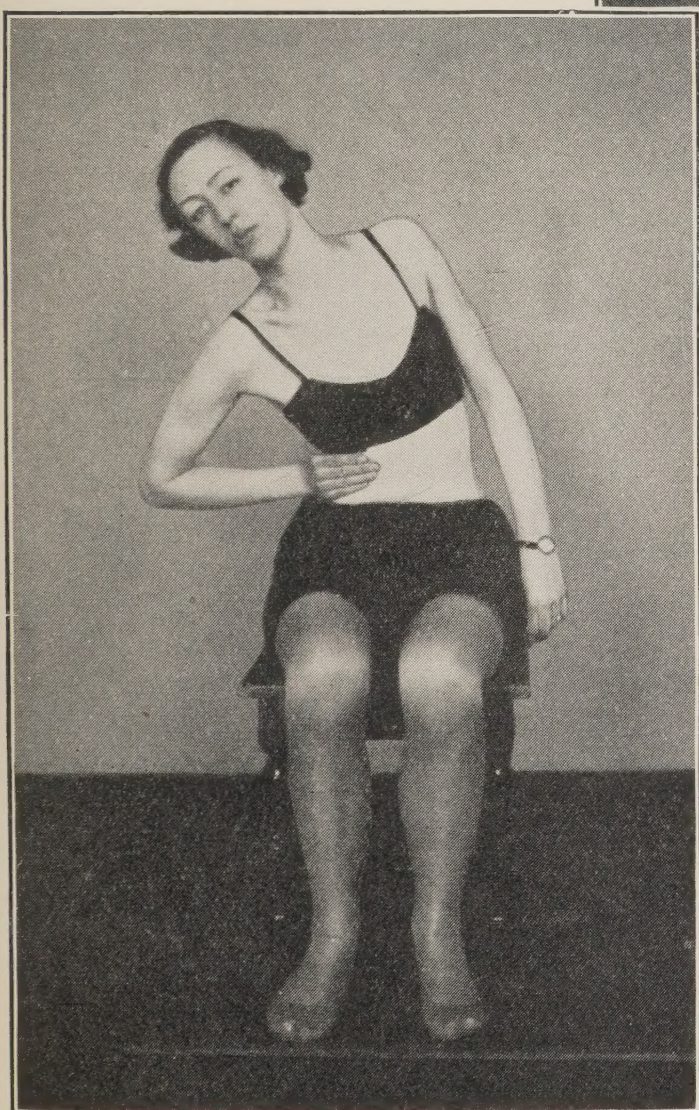
### STARTING POSITION.

Sitting with feet well apart, right hand on ribs at the side of the chest.



### POSITION 1.

Begin to breathe out.

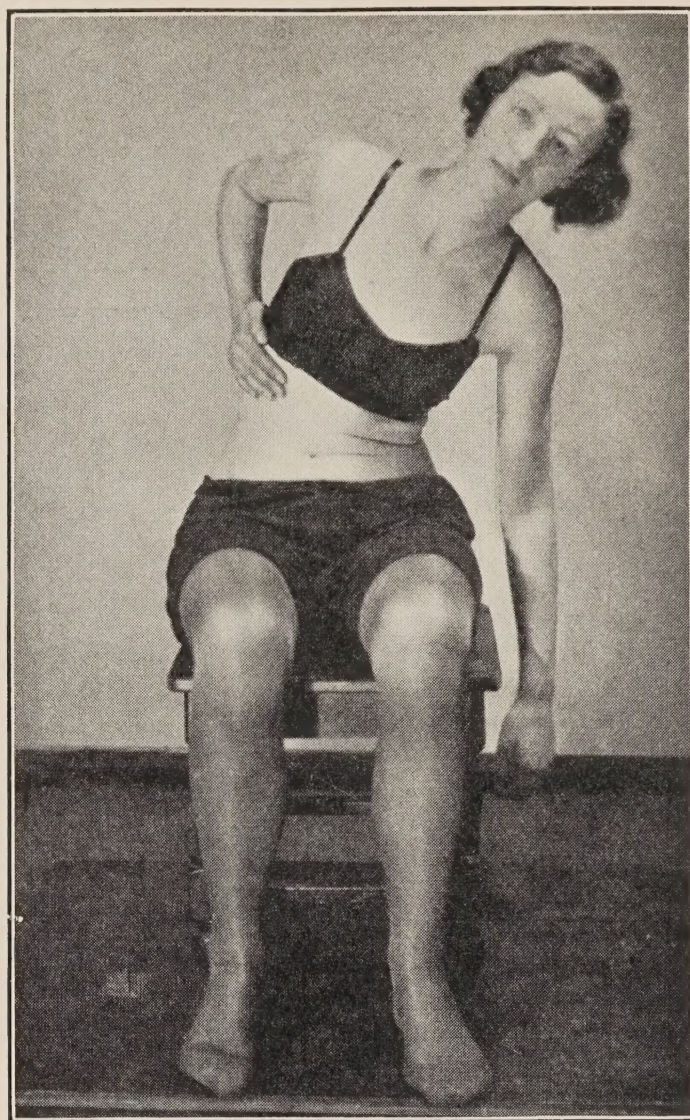


### POSITION 2.

Bend over to the right side while breathing out.



## ADVANCED TRUNK SIDE-BENDING (continued)



POSITION 3.

Bend over to the left side quickly while breathing in.

Bend slowly back to the right side, breathing out. After six bends to the right, breathing out, change hands and bend to left side while breathing out—so that the base of the left lung is fully used. The bending is high up and only above the waist. The hand presses firmly towards the end of breathing out, so that all possible air is squeezed out of that lung.

On breathing in, the side of the chest is pressed out against the hand.

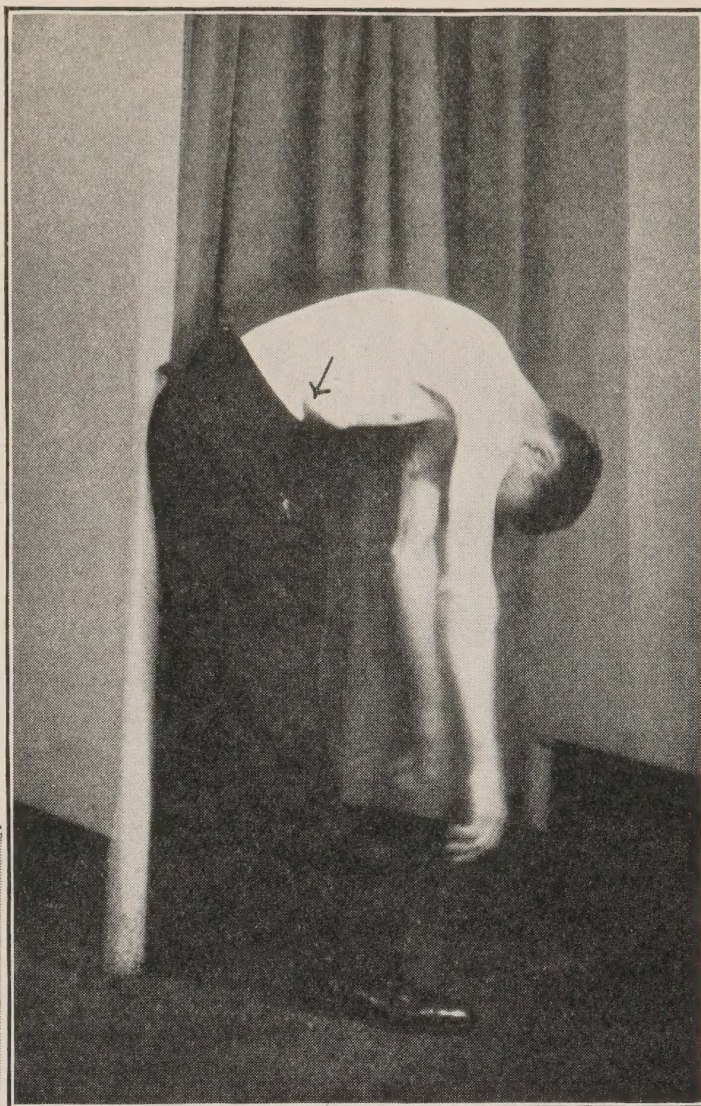
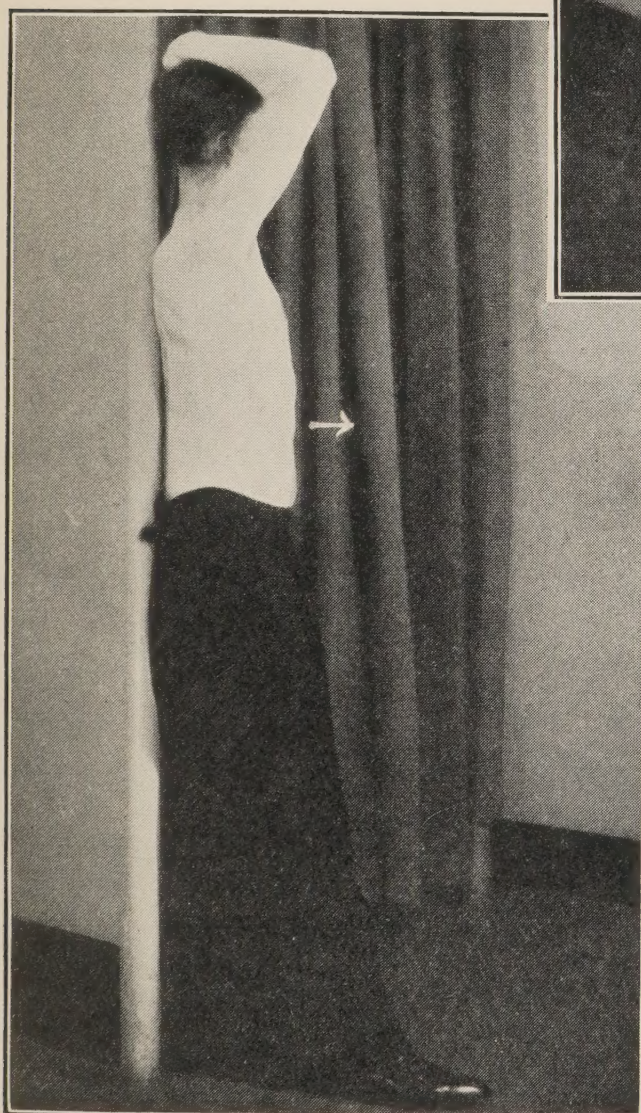


## 10. POSTURE CORRECTING AND BREATHING EXERCISE

### Advanced Trunk Forward-Bending

#### STARTING POSITION.

Standing, with whole of back, shoulders and head against corner of wardrobe, doorway edge. Feet, six inches away from wall.



#### POSITION 1.

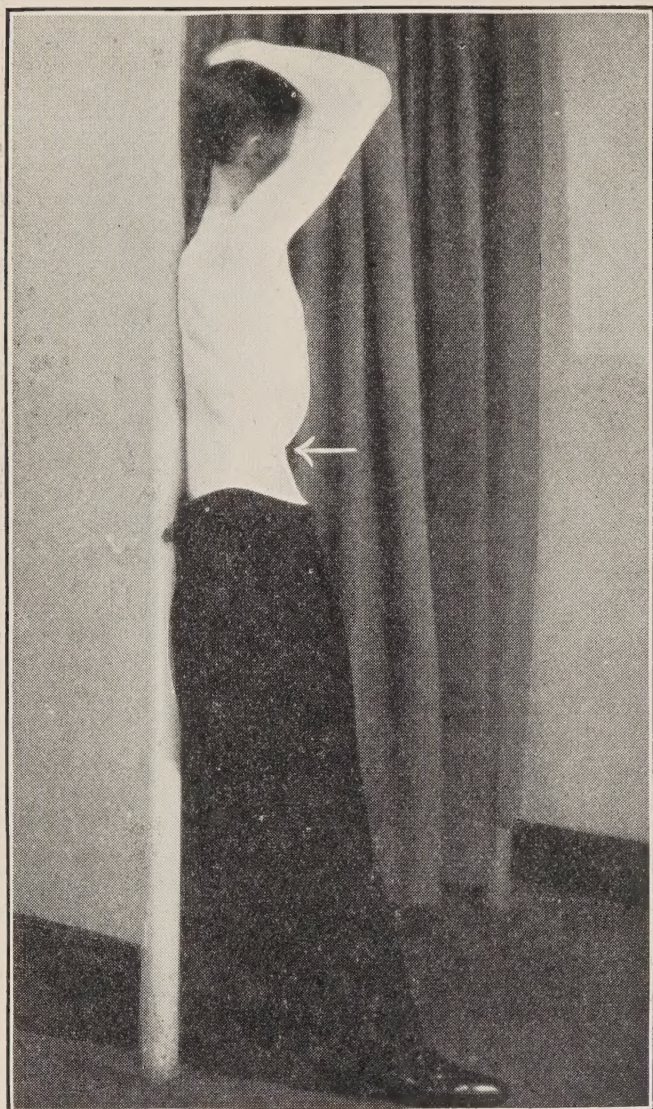
Bend down slowly—head, then shoulders, then back—while breathing out. The arms hang limply.

#### POSITION 2.

Raise the body while breathing in, pushing lower part of back first against doorway edge, then middle part, then shoulders and, finally, head.



# POSTURE CORRECTING AND BREATHING EXERCISE



## Advanced Trunk Forward-Bending (continued)

### POSITION 3.

Holding head, shoulders and upper part of back and hips firmly against the edge, breathe out quickly contracting abdominal muscles so that *lower part* of back is flattened against the edge too.

Take in a small breath before repeating Position 1.

*Note. In photograph, the hands are placed on head to show position of back. This is not to be done in exercise.*

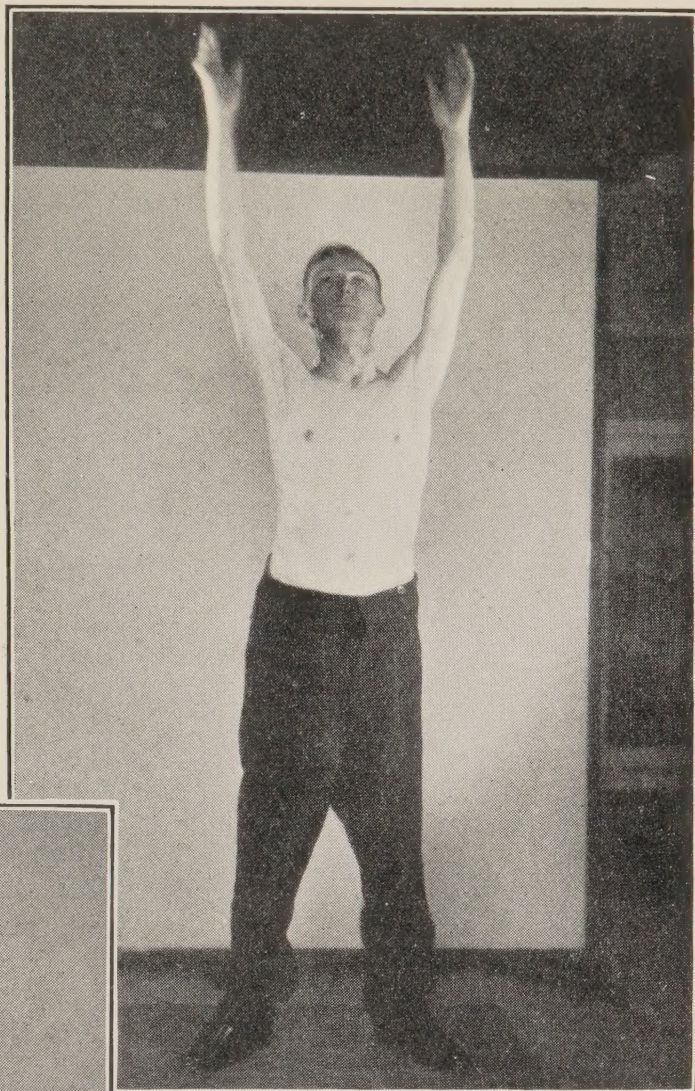


## II. COMBINED BREATHING AND LOOSENING EXERCISE

Side-bending  
with rotation

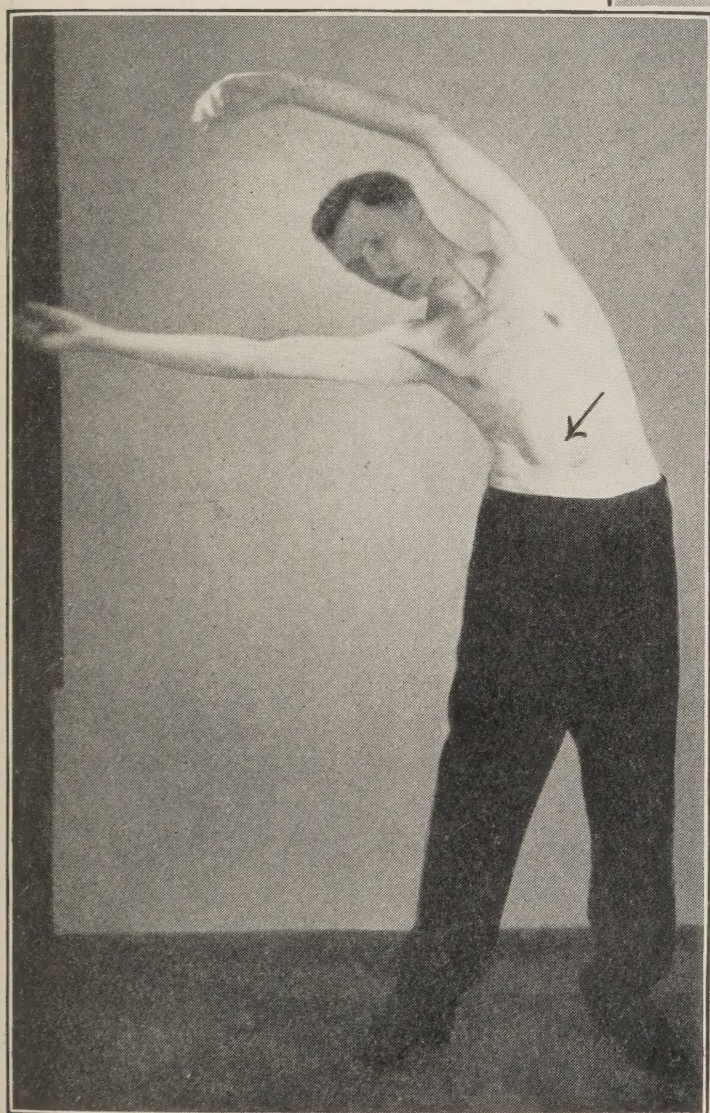
### STARTING POSITION.

Standing with feet apart.



### POSITION 1.

Carry arms above head while  
breathing in.



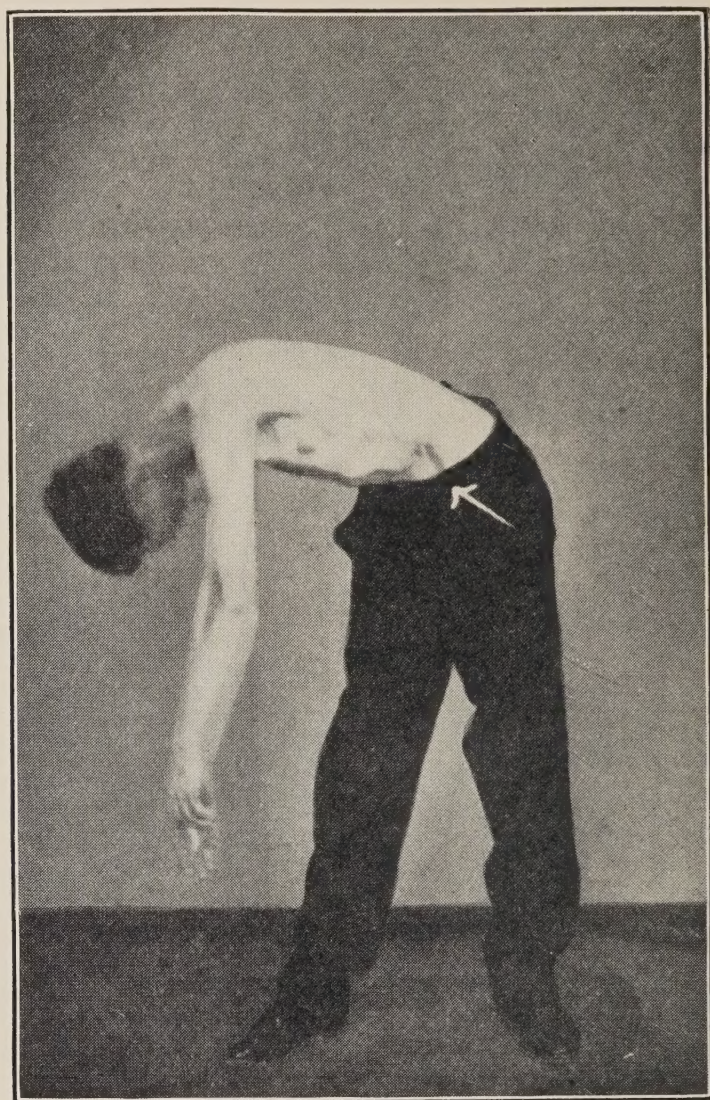
### POSITION 2.

Bend slowly over to right as  
far as possible while breathing  
out.



# COMBINED BREATHING AND LOOSENING EXERCISE (continued)

## Side - Bending with Rotation



### POSITION 3.

Twist while fully bending so that the arms are carried outside the right foot—while continuing to breathe out and fully contracting abdominal muscles.

Raise the body upright to Position 1 (i.e. with back straight and arms above head) while breathing in.

- Note.*
- (i) *Press head back firmly during the first part of the exercise (Positions 1 and 2).*
  - (ii) *Aim to keep the back straight in first part of exercise—do not lean back on carrying arms above head or on side-bending.*
  - (iii) *On side-bending, the arms are well stretched out, but not held stiffly.*







Bayriase 41 Newbeck Street